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ORIGINAL ARTICLES.

AN IMPROVED OPERATION FOR ACUTE APPENDICITIS OR FOR QUIESCENT CASES WITH COMPLICATIONS.

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HOWSE, in 1879, was among the first to split, rather than cut, the muscular layers of the abdominal wall in an endeavor to secure a sphincter effect in an artificial opening into the alimentary canal. While this was imitated by many surgeons in the rectus muscle when a gastrotomy was resorted to, it was more nearly perfected by Maydl in 1888, when he planned an intermuscular separation in connection with the establishment of an artificial anus in the left iliac fossa. But no one resorted to this procedure for entering the abdominal cavity for operative work with a view to secure thus, from the subsequently replaced muscles and their fascia, a restored abdominal covering that would effectually prevent the occurrence of hernia until the efficacy of this method was made known to the profession by McBurney, in 1894. The test of experience has fully confirmed the judgment of this surgeon, who considered it as applicable to the ablation of the appendix in a state of quiescence from a still unquenched fire. It yet remains as the operation *par excellence* for this class of cases, and a recent experience has confirmed to me its utility in a manner that is not common. In a patient who had been operated upon by the McBurney method (*i.e.*, muscle separation after dividing the fascia of the external oblique for a distance of about three inches and then transverse division of the transversalis fascia and the peritoneum) for a supposed chronic appendicitis, and from whom a kinked appendix was removed, a second laparotomy was afterward demanded for the continuance of pain which, as time went on, revealed as its cause an enlarged right ovary. This was performed nine months subsequent to the first operation. The second skin incision was parallel with and close to the first, and on exposing the fascia of the external oblique muscle, save at one or two slight points where the skin adhered cicatricially, no trace whatever of damage was to be found in the fascia itself even when widely exposed, nor was there in the muscular layer, when hunted over in the new separation, to be found more than occasional traces of increased connective tissue. Had one not been on the lookout, it might have been supposed to have been a virgin operative field.

McBurney's limitation of this operation to those cases where inflammation was absent or where its traces were slight, as far as external evidences went, has been shown to be a wise one. For, as all operators know, even in the so-called quiescent stage the appendix may be bound down with adhesions or abnormally displaced, or even at times be associated with unexpected, although small, suppuration about or near it. These complications would occasionally demand more room than that which would be obtained by stretching the separated vessels from the iliac spine to the edge of the rectus muscle. This space will seldom average more than two inches in transverse width, although the opening can be pulled down to a little greater width in a vertical direction. Increased space was obtained to meet these conditions by other surgeons who endeavored to use the excellent method in acute cases of appendicitis by incising the median end of the intermuscular space upward along the edge of the rectus. This certainly gave more room, but the abdominal wall was correspondingly weakened and its repair could not so satisfactorily be obtained by the buried sutures that were necessarily applied. My own experience in this enlargement was not a satisfactory one and for some time I balanced in operating for acute appendicitis between the old incision through all the tissues of the abdominal wall and the enlarged (and hence much deteriorated) muscle separation method.

Some two years since, being led to it by the experience obtained since 1894 in the oblique incision for gall-stone surgery, wherein additional room was had by incision of the rectus sheath, drawing the muscle to the median line and then dividing the posterior fascia, I ventured to increase the intermuscular space of McBurney by similarily treating the rectus at this lower level. I was at first hampered by the difficulty of dragging the median edge of the divided fascia of the external oblique sufficiently far inward to expose amply enough the anterior sheath of the rectus muscle. For the past six months the procedure has been simplified and made more desirable by tearing off, with the finger-tips or with the end of a blunt scissors, the already denuded fascia of the external oblique muscle from the sheath of the rectus quite up to the median line where it is held retracted by an assistant. The anterior sheath of the rectus is now divided transverely in a line continuous with the opening made in the peritoneum by the original muscle separation operation. The outer edge of the external rectus muscle is then lifted up with a director or the end of blunt scissors and carried by a retractor also to the me-

dian line or as near as may be desired. On the thin transversalis fascia, with the peritoneum underneath it, that here makes up the posterior sheath of the rectus will be seen the epigastric vessels which should be seized, divided and ligatured and sometimes pulled outward, and the sheath and peritoneum cut in a manner similar to the outer sheath. When blunt retractors are now passed into the peritoneal cavity and the abdominal wall put on the stretch, there is a very superior exposure of the whole pelvis and of the right iliac fossa. Indeed, I have never before been able to command these parts so well until exposed by the incision, and particularly is it so if the gravity action induced by a sand-bag under the right hip or by a Trendelenburg position judiciously used after the removal of infecting inflammatory fluids.

During the past year I have systematically used this operative procedure in twelve cases. In three of these there were unlooked-for complications in the removal of a quiescent appendix. One was a tubo-ovarian case, already alluded to, and the other a case of ectopic gestation, wherein the first attack of pain one month before the second was associated with a tumor in the appendicular region and in which in the last attack the ordinary evidences of hemorrhage were not marked and the symptoms pointed simply to an appendicitis. Here the removal of the three-months' fetus and sac and of the numerous clots was most readily accomplished and the necessary irrigation of all parts of the abdominal cavity obtained by the wide space given by the rectal sheath incision. In all of these five cases the wound was tightly and promptly closed, first by sewing together, with No. 1 catgut, the posterior sheath of the rectus with its continuation outward of the transversalis fascia and peritoneum up to its outer angle near the anterior superior iliac spine. Then the rectus muscle was dropped back into its place, its front sheath closed by interrupted sutures of chromicised No. 1 catgut, a special suture fitting neatly the outer border of the sheath. After this the abdominal muscles were allowed to come together and held generally by one or two simple No. 0 catgut stitches and, finally, the incised fascia of the external oblique is closed with a similar catgut continued suture, and the skin brought together with fine black silk interrupted stitches. Not only the anticipated primary union has occurred, but from no damage being done to any of the nerve supply of the rectus muscle, no bulging or weakness of the abdomen has been produced.

Of the seven other cases there was in six more or less severe suppurative or gangrenous appendicitis and in one so extensive a peritonitis showed itself that it might have been classed by some as general, but being somewhat skeptical about cures in such forms of peritonitis and from the scattered but well-formed lymph patches that were present, I considered it an extensive but not a general invasion of the abdominal cavity. For its treatment after the amputation of the gangrenous and perforated appendix, a nearly complete evisceration, cleansing and irrigation with hydrogen peroxide solution of the major part of the small intestines were undertaken and free irrigation and wiping with one-yard pieces of gauze of the partly emptied and fully exposed peritoneal cavity. The wound was then closed as narrated, save that in this case as well as in the five others, a space the size of a quarter-of-a-dollar or less was left in the various layers of the abdominal wall at about the middle of the skin incision through which were carried wicks of iodoform covered by thin rubber tissue (not gutta-percha, as this easily breaks off) to allow of easy withdrawal. The peritoneum, fascia, and muscle were closed by suture up to the drain. A provisional suture of chromicised catgut is occasionally left to close the opening a day or so after the withdrawal of the drain. More time is required to test the value of this extension as to hernial protrusions which are stated by Coley to occure once in twenty times in the older style of cutting through the entire abdominal wall and in which drainage is used. Even although little or naught should be gained in this direction, which I cannot think possible, the great advantage obtained by the full exposure of the central part of the pelvis and abdomen must enable a surgeon to care much better for infectious lesions now often beyond his ken.

It is further believed, since Abbe has shown that the kidney can be reached by intermuscular separation, that with this utilization of the rectal space, plus the muscular separation, more ease of surgical work can be attained in liver and gallstone surgery. Bevans' access to these regions is largely due to the use of this means.

THE BUBONIC PLAGUE.[1]

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WITH the enormous disasters resulting on the widespread extent of the bubonic plague in mediæval times and especially in the English-speaking countries in the seventeenth century in mind, it is hardly surprising that its occurrence should be dreaded at the present time, especially when it is remembered that this plague still devastates Asia, and that improvement in travel promotes the spread of germs. The question whether a recrudescence of the plague in Europe is likely to occur can only be answered after an analysis of the better known conditions of the biologic character of plague germs and of the clinical aspects of the disease in man and animals. Knowledge of the first practically began with the determination of the plague bacillus (Bacillus pestis bubonicæ) by Kitasato and later (1894) by Yersin. In the preparation of the present lecture I have analyzed for data about forty papers upon the subject in order to furnish facts which will be of assistance in determining methods of ascertaining the danger of this plague and the means of combating it. In discussion of these questions the cause of the bu-

[1] Read before the Chicago Medico-Legal Society, December 2, 1899.

bonic plague must be considered first; second, the disease, and, finally, prophylaxis and therapeusis.

The plague bacillus has been demonstrated beyond a doubt to be the cause of bubonic plague, since every phase of Koch's law has been fulfilled by it. The bacillus pestis bubonicæ has a small, rod-like appearance. It is one micromillimeter in thickness and from three to five times this dimension in length. Under favorable conditions, in fluids, it forms chains, every link of which, dividing repeatedly, produces diplobacilli. If the growth be rapid there are formed coccus-like varieties. If the temperature is too high or the nutrient medium is not perfectly adapted there arise degenerative or monstrous forms which serve a useful purpose in diagnosis. They can be produced for that purpose, as has been recommended by E. H. Hankin of Aga, India, if cultivation be made on agar containing two-and-a-half to three-and-a-half per cent. of sodium chloride. It is easier, however, to raise the bacilli first upon the usual pepton-agar and later transfer it to the salt agar (Hankin and Leuman). These degeneration forms are not endowed with lesser power of infection than the regularly grown forms. They seem partially affected by plasmolysis, forming large round, oval or club shaped bodies, often clostridium-like; sometimes they present large and irregular masses, threads, branched forms and networks and seem to consist of a gelatinous substance excreted from the organism. This substance is frequently found in older cultures of the plague bacillus in the form of round globules of different dimensions staining very deeply in dilute carbolfuchsin.

In a culture which I received from Kral of Prague, these forms were abundant and were in puzzling appearance contrasted with the more lightly colored bacilli. It has not yet been ascertained whether these forms are also present in bubonic pus, but it has been noted that the pus of buboes seems to contain cocci which may be a misinterpretation of the presence of the globules.

Staining of the plague bacilli may be effected by alkaline analine dyes, but is never very intense; if not, polar globules are present, which is not the case in every culture. The plague bacillus grows best on normal agar and gelatin media without addition of glycerin on sugar. It forms in the stab and streak, first transparent colonies, which later exhibit a whitish, then a yellow tinge, and then become granulated. The larger forms are surrounded by a slight iridescent area. The most favorable temperature is seemingly somewhat under 36° C. Kitasato was of an opinion that this bacillus was mobile but later observers deny this. My cultures not being fresh ones cannot settle this question. The plague bacillus is most readily demarcated from cocci by decolorizing in the Gram treatment, by the absence of spores and by the degeneration forms. Gabritschewsky has seen capsules stained with Loeffler's blue, whereas the bacilli were stained red by carbolfuchsin. This may be the commencement of degeneration or formation of the glutinous substance.

The general belief is that the plague bacillus is easily destroyed by drying and cannot live a long time in water. There are observations which seem to show the contrary. Kasanski found that the bacillus lived in the water of the water supply of Kazan from ten to forty-eight days; in milk twenty-six and in urine sixty-two days. His observations have been confirmed by W. E. Abel both as to sterilized and non-sterilized water. Nadjesda K. Schultz, working under supervision of Nencki claims to have found spores in a culture on addition of a small quantity of phenol. The plague bacilli, according to C. P. Gladin, do not die readily on drying. He found that in drying them on cover-glasses in a temperature of from 14° to 24° C. they lived from one to nine days. Dried upon silk threads, they lived from one to twenty-one days; upon thicker cloth, fourteen days; upon rough linen twelve to twenty-six days. It is generally conceded that the plague bacillus, in fluid media, is readily killed by heating it to 58° or 60° C. Toptschieff found that it was killed in test tubes by heating at 58° C. for eight minutes and in capillary tubes for four minutes. Temperatures below zero are very well borne by the plague bacillus, according to Kasanski. This may explain why epidemics in warm countries are more dangerous in winter than in summer; although there are exceptions to this rule.

Disinfection by chemicals kills the plague bacillus very quickly. According to Hankin they are killed by a two-per-cent. solution of carbolic acid in two minutes, mercuric chloride, 0.2 per cent., and copper sulphate, 0.1. The bacillus is more resistant to alkalies than to acids. Acids are very effectual. Hankin saw the bacillus die in one hour in sour milk. This may be the effect, however, of milk bacteria which act in destroying similarly to the micro-organisms of decomposition. According to Hankin the death of the plague bacillus occurs in organs in six days. Yokoto, however, found that they still survive in the dead bodies of animals at a temperature of 22° to 30° C. for fourteen days; and at a temperature of 10° to 22° C. for from nineteen to twenty-two days. Schotteli found that evidences of the bacillus from buried plague-stricken animals very rapidly appear in the surrounding earth. Calcium chloride and potassium permanganate are very effective according to Hankin in one-tenth-of-one-per-cent. solutions. According to N. K. Schultz, mercuric chloride (1 to 1000) is very effective in two minutes; mercuric chloride with hydrochloric acid (1 to 20,000) is effective in the same time. Formaldehyde and phenol, but only in the concentration of 1 to 50, kill cultures in two minutes. The first, however, acts excellently as a gas.

With reference to the disease produced by this bacillus known as the bubonic plague, I shall vary its description from that given in the ordinary text-books, not only because these are well known but also because the variation is needed for the purposes of State Medicine. For this purpose the different ways in which the bacillus can be introduced into the body will be first discussed. In by

far the majority of cases there is a close connection between cases of plague and new infections. In some instances such a connection has not been demonstrated, as was the case in ten patients studied in a Bombay hospital by H. F. Mueller, who died plague-stricken from his later work in Vienna. From his results it appears that plague infection may occur without lesion of the skin (the generally accepted origin of the primary bubo) and seemingly without other direct contagion. The possibility of infection by insects, demonstrated first by Roux, must be taken into consideration in such cases. He found that flies caught in the laboratory of the Pasteur Institute of Paris, in 1897, where work upon the plague bacillus was done, if ground in sterile water, infected guinea-pigs with plague. It is, therefore, obvious that these insects may also disseminate the virus. In one case described by Mueller in a hospital not containing plague patients, a man with testicle and lung tuberculosis developed a cubital bubo at the eleventh day of his stay. From this he subsequently recovered.

While the German Commission denies that fleas and mosquitoes can infect with plague, still there are many observations which demonstrate this. Hankin found the plague bacillus in fleas and ants which had been on rats dead from plague. Simond infected living rats by the fleas from rats killed by plague. Without fleas such rats were proven non-infectious. The German Commission, however, denied this method of infection so far as regards man. Indeed, it does not seem very probable that fleas infesting rats will attack men. Against the infectious action of fleas from plague-stricken patients stands the fact that in the wards of the Bombay hospitals, visiting and working people rarely if ever became infected.

The expectoration of pest pneumonia has much greater tendencies to disseminate plague germs in a spray formed by small drops containing air (Fluegge). Such patients should be isolated and covered entirely with a veil supported by a light frame. The physician should guard against this mode of infection but not, as was advised by the Imperial German Health Board, in October, 1899, by the use of thick veils which cover the face and impair sight and respiration. In lieu of this, sterilized gauze should be always ready in the side pocket for use in covering the mouth and nose in an emergency. Sublimate gauze was used for this purpose in the cholera barracks in Hamburg. The danger, however, is much greater in plague. It should not be forgotten in the treatment of plague, to clean the mouth and nose from time to time with disinfectants, since, as has been shown by the German Commission in India and by Baizaroff, the slightest infection of the nose may give rise to plague pulmonary disorder. Physicians and people who have to do with plague patients should cut off their beards and disinfect the whole surface of the face, especially the former hairy parts. They should then gargle with and swallow non-poisonous disinfectants.

The possibility should not be forgotten that infection may occur through water and food. In time of epidemic boiled water and cooked food should be employed and scrupulous cleanliness should be enforced.

For therapeutic and prophylactic purposes experiments in bacteriotherapy have been made. Haffkine employed for therapeutic purposes cultures killed by heat and kept sterile by addition of carbolic acid. Heat according to Markl partly destroys the toxin. Haffkine's work has been sharply criticised by Bitter who, however, concedes that some good results were obtained by Haffkine despite the unhygienic methods employed. In families, some of whose members were vaccinated, Bitter found that the non-vaccinated (124) had forty-three-and-a-half per cent. of plague cases with sixty-and-a-half per cent, of mortality, while the vaccinated (250) had but twenty per cent. affected with but eight per cent. mortality. The continuous contact of the non-vaccinated, as Haffkine remarks, must have exerted an unfavorable influence on the vaccinated. The Imperial German Health Board has recommended the erection of stations for the production of antiplague vaccine. Yersin has had by no means disappointing results with antiplague serum. There seems, however, to be some difficulty in reaching a higher degree of immunity in horses; a difficulty which further study will doubtless overcome. In Amoy the mortality of twenty-three cases treated with serum of Yersin was but seven-and-half per cent. against the sixty to ninety per cent. mortality so frequent in epidemics of the plague.

The first method of combating the spread of the plague must be by general hygienic measures. These measures following the conclusions of the Imperial German Health Board should be as follows: (1) The control of transportation of persons and of merchandise. This should include careful observation of the suspicious cases with retention of the sick for a sufficient time for medical study. It should also include quarantine against plague-stricken countries for a period of ten days, which can be shortened or omitted if a sea voyage of more than ten days has preceded the arrival of the vessel. (2) The proper education of experts, which will include the thorough training of bacteriologists in the life-history and culture of the plague bacillus and also educational courses for sanitary officers. (3) The measures which should be taken in the event of the appearance or suspicion of appearance of a bubonic plague, as follows: All suspected plague cases should be immediately notified to the proper authorities. All pneumonias should be regarded as suspicious and also notified; this procedure has long been adopted in English-speaking countries in principle, in the notification of diarrhea cases during cholera epidemics. Where suspicion of a case occurs, a sanitary expert should be immediately sent. Portable laboratories should be instituted for use in such emergencies. The demonstrated cases of plague should be isolated immediately in a plague hospital. If the case of

plague has originated spontaneously and there is reasonable suspicion that rats are the source of infection, the whole house should be cleared (Pfeiffer). If the case, however, be imported, the flat alone should be cleared and the well members of the family should be kept under observation in other quarters. Gaffky found it sufficient to submit the well members of the family to daily medical inspection while permitting them to move around freely.

In regard to the question of disinfection, Fluegge claimed that his method with formalin-steam could be used even if the windows and doors were not hermetically closed. In this event three times the usual quantity of formalin would be needed. As already observed Schultz has also found that formalin in gaseous forms possesses great efficiency. The nature of protection needed for physicians and nurses has already been discussed. In the struggle against the rats, Frosch advises strychninized-wheat, which in Oporto has given good results when laid in sewers and canals. It is well known to sanitarians that sulphurous acid used in fumigation drives away rats. The German steamers which land in plague-stricken places put large sharpened discs upon the cables connected with the pier as defenses against rats. It seems desirable that special institutions should be erected by the Government for the purpose of securing preventative and healing injections. For active immunization of animals with living cultures such institutions should be placed on islands, as is done in Russia and in Italy. It is further recommended to employ for the production of the preservative substance, or vaccine, a combination of active and passive immunization, since the last process is low in action but diminishes the reaction of the first. By passive immunization is understood in Germany serum treatment. The French scientists (Calmette) substitute for these expressions the somewhat less obscure phrase "cellular and humoral immunization." As Loeffler very correctly remarks, passive humoral immunization may not prove sufficient against infecton of the respiratory tract. With reference to the danger from dead bodies in plague, Fluegge is of the opinion that this is not great, but ignores the observations previously cited from Shottelius, and also the fact that plague broke out in Egypt after disinterment of the bodies of the Arabs killed in the battle of the Pyramids.

If the conditions which are known to exist anent the bubonic plague, its nature, its method of spread, and the conditions which give it an epidemic character be considered, the danger for the United States does not seem very great. It should, however, be remembered that the Western Hemisphere is no longer free from the plague. Importations of it have already taken place in New York. The battle against its further spread will be successful only if uniform hygienic measures are instituted throughout the whole country. This cannot be done without supervision from the Federal Government. More than ever before, is is evident that a Department of Health should be created in the Cabinet of the President, such as has long been advocated by the medical profession. In the larger cities, such as Chicago, proper cleansing of the streets, proper drainage, such as the drainage canal will ensure, and the institution of more effective disinfection are required. The medical profession will certainly help the local governments in every way if opportunity will be given.

Discussion.

Dr. Gehrmann, in expressing his appreciation of the remarks made by Dr. Klebs, said: The two points which seem to be of interest at the present time, while the plague is still distant, are the different ways in which propagation takes place and the diagnosis of cases. The relation of the smaller animals and insects to the spread of the disease is one of the latest demonstrations. In *La Semaine Médicale* there recently appeared an account of ancient pictures where a number of rats and mice are figured in the area where the patients were, the attempt being made to show the relation of these animals to the disease. The experience in India and Continental Europe seems to show that the most severe outbreaks occur in the outlying and shipping districts, and that people become infected in warehouses in connection with the handling of goods coming from foreign countries. From these people it is transmitted to residence districts and from these it spreads. Rats also bring the plague, and their access to warehouses is again one of the factors in distributing the disease. These people are subjected to infection of the worst form; the condition of these buildings, damp, and with little chance for the admission of sunlight, seems to assist the spread of the plague by lessening their resisting powers.

The various details laid down, as reported in the Berlin Conference, should make it comparatively easy to recognize cases of plague. There is some difficulty in that the bacilli do not retain their activity in the glands throughout the length of the disease, making their isolation quite difficult, but, as Dr. Klebs has said, extensive experiments show that there is no reason why the bacillus cannot be isolated. The characteristics of the bacillus are not wholly settled; the main features, however, are determined.

From the literature it seems that the possibility of infecting animals by feeding them plague material ought to be one of the very important diagnostic points; that where we have cultures, or material suspected of containing the plague bacilli, the feeding of this material to rats and mice and thereby infecting them, as well as by direct inoculation, would be a very valuable point. At present our reliance must be placed in the vigilance of our Marine Hospital Service to prevent importation of plague cases into this country.

The instructions recently issued by Surgeon-General Wyman if intelligently applied by the officers of the Marine Hospital Service will insure our country against invasion by this pest.

A CONSIDERATION OF ACUTE INFLAMMATORY RHEUMATISM.

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INFLAMMATORY rheumatism is a disease with which we so frequently come in contact, and about which we know so little, that papers upon and discussion in regard to it can only do good, if it be only to fix in our minds how little we know about the subject—how circumscribed are our limitations. If this much can be clearly defined we have made a distinct progress, for one of the first requisites towards advancement in knowledge is to unlearn much that we think we know.

There is probably no disease with such prominent symptoms and so easy of diagnosis as inflammatory rheumatism, and yet none that has been burdened with so many theories as to its etiology and methods of treatment.

From the active antiphlogistic treatment of the ancients to the whey expectant treatment of Sydenham 200 years ago, to the return to active blood-letting and purging of the eighteenth and early nineteenth centuries, to the formulating of the lactic acid theory by Prout, to the disappointment of the alkaline treatment leading to the placebo of our own Flint, and the mint waters treatment of Sutton in 1863-5, down to early in 1876 when Maclagen gave the results of the salicin treatment to the profession; and a little later to the favorable reports of Stricker and Riess on the employment of Kolbe's synthetical product, salicylic acid, the history of the treatment of inflammatory rheumatism has been marked by thereapeutic monstrosities, blindly worshiped until smashed by some iconoclastic scientist, who then sets up some other idol whose crown appears to be of the pure metal, but whose feet are crumbling clay.

Loss of faith in methods of treatment resulted from time to time in the agnosticism of the placebo, the whey and the mint water; and a study of the devotion, the revulsion, the indifference of the mind of the profession during these centuries, would make an interesting chapter in psychology. Not until 1876, when the reports above referred to were published, was there any distinct thereapeutic progress made. Treatment based on the old theories was found unavailing. One by one the hypotheses were found to be inadequate to explain the conditions present, until, finally, the resemblance of inflammatory rheumatism to malaria engendered the belief that it was of miasmatic origin, and that salicin was its natural antagonist.

That after the lapse of twenty-three years our mental attitude should still be one of belief and not of conviction is proof of the difficulties of investigation and a sad commentary on our scientific limitations. That we are tsill hampered by much of the lumber of the past is undeniable and our progress is by that much impeded. Phlogiston is still a shadowy factor in deciding our treatment; there are still ill-defined shapes of acids floating before our mental vision, affrighting us by their very indefiniteness, and, perhaps the veriest bugaboo of them all, the nervous system, challenges our attention; and yet with it all, true progress has been made, not only in the therapeutics, but in the etiology of inflammatory rheumatism.

Inflammatory rheumatism is a disease of the serous and fibrous tissues of the body, especially manifesting itself in those which are concerned in facilitating, limiting, and producing motion, *viz.*, synovial membranes and the left endocardium, the ligaments of the joints, tendons and muscles. That no fibrous or serous tissue is exempt from the rheumatic poison is generally understood, but the chief manifestations are restricted to the structures mentioned.

The disease is characterized by pain, which is present until the disease is cured, by swelling, heat, redness, and impairment of function, the cardinal points of inflammation—an inflammation, however, which seldom results in the formation of pus. It is, furthermore, characterized by a temperature of a variable character, by a somewhat regular progression of the inflammation from one joint to the other—the accession in one joint often being accompanied by recession in another, by various nervous symptoms, oftentimes nausea and constipation, scanty urine loaded with urates and some crystals of uric acid, lactic acid in the blood, a profuse acid sweat—which acidity some claim to be due to lactic acid, others to putrefactive changes on the surface, or to the elimination of volatile fatty acids—and in some cases urticaria, purpura, erythema, eczema and nodes.

To account for this complex of symptoms, many ingenious theories have been formulated and foisted upon an ever-ready profession, only to be found lacking in some essential. The theory which has had the strongest hold upon the profession is that lactic acid is the cause, and that this idea still has many adherents is witnessed by the untiring efforts of the pharmacists in exploiting the various antacids. That lactic acid is found abundantly in the blood of patients suffering from this disease is demonstrable; that its excess is eliminated by the skin, causing the profuse, perspiration, instead of by the usual route of the lung as water and carbonic acid gas, seems highly probable, but that a constantly present chemical agent can produce the irregular symptoms present cannot be believed.

Physiologists tell us that lactic acid is a result of muscular waste, whether that be brought about by exercise or by cell activity induced by irritation; that fibrin, which is in excess in the blood of rheumatics, is produced in the same way, the one from the glucose of the muscle; the other, with urea and uric acid, forms the nitrogenous elements. We are told by the adherents of this doctrine that an excess of lactic acid as the result of severe exercise is made patent for

ill by exposure to cold. We cannot conceive of enough of the acid being produced in this manner to keep up a protracted, violent attack, the symptoms often increasing in severity when there is free elimination through the skin, nor that fresh joints frequently should be involved even after weeks of protection from cold in a comfortable room and a warm bed. We cannot conceive of a reservoir for the holding of the acid from which it is given out in accordance with the severity or mildness of the symptoms. Any tenable theory of a disease must adequately explain its phenomena. The lactic acid theory measured by this cannot hold; no more can the nervous theory, although to the pathologists it has much that is alluring.

When considering the miasmatic theory, we feel that we are on firmer ground. Although, notwithstanding twenty-three years of research, much is involved in obscurity and nothing in a biologic way has absolutely been determined, yet the clinical facts point so unerringly to bacterial development, and above all the therapeutics have so decided a limiting effect upon the disease, that we are forced to admit a partial correctness of the belief now steadily gaining ground. Bacteriologists have demonstrated that micro-organisms have the quality of selecting their proper habitat or nidus; that their activity depends largely on their supply of nutriment; that when their nidus is exhausted their activity ceases; and that their presence in tissues under proper conditions provokes inflammation which will continue as long as the irritant is active.

Granted we have the micro-organisms finding an entrance to the body with all the conditions right, their particular nidus is the serous and fibrous tissues. As a result of their activity inflammation supervenes, only to die down when the nidus is exhausted; new colonies are sent out to invade fresh fields of fibrous or serous tissues; the fields of first invasion are renewed only to be attacked and occupied by another colony, and this indefinitely, as is a matter of clinical observation, unless checked by treatment.

Micro-organisms in their growth use up water and nitrogen, thus accounting in part, at least, for the thirst and wasting. Their presence in the muscular, fibrous and serous tissues induces active changes, such as inflammation, lactic acid, uric acid, urea. Lactic acid induces profuse perspiration, which can be experimentally demonstrated; urea and urates are abundantly found in the urine, which is scanty on account of the loss of water. New colonies invading new fields produce fresh inflammation, and exhausted fields renewed furnish pabulum again. Thus does this theory explain the symptoms of inflammatory rheumatism. But we do not have to rely on theory alone, for as a result of observation it has been pretty thoroughly demonstrated that the presence of micro-organisms is an etiologic factor of importance.

Achalme has repeatedly found a bacillus both in the living patient and post-mortem, cultures of which induced joint-swelling in the guinea-pig. Boucheron, in addition, has found staphylococci and streptococci and has seen good results in six cases from injection of Marmorek's serum. Thiroloix found a bacillus which grew abundantly, was slightly motile, and which he claimed to be identical with Achalme's. Maragliano has also found micro-organisms in the blood of rheumatic patients. Numerous observers have found streptococci and staphylococci, and the frequent associations of rheumatism with tonsillitis and wounds lend color to the belief that the micro-organisms have their port of entry through the tonsils and through wounds. Above all, however, is the therapeutic proof, *i.e.*, the free administration of salicin, salicylic acid, or its compounds. It is a clinical fact that full doses of these drugs will cut short an attack of inflammatory rheumatism, and they do not do so by neutralizing the acid, for that is demonstrable even after all pain and fever have subsided.

The complications, too, bear the mark of infection, and we can hardly account for the blood dyscrasia which permits purpura and hematuria by any other hypothesis. But in accepting the infection theory of the cause, we must not lose sight of the fact that there must be a proper soil for the development of these micro-organisms.

What conditions are necessary to make the soil fruitful to bacteria of this particular sort we are not prepared to say, except that subjects of inflammatory rheumatism possess that peculiar predisposition towards disease known as the arthritic diathesis, that they suffer from the so-called acid-dyscrasia, and are individuals whose metabolism is subject to retardation. Oxidation in the tissues not being carried on to completeness, a great number of acids instead of the end products are the result, *i.e.*, water carbon dioxid, urea, uric and hippuric acids. As the result of incomplete changes in the digestive tract and of bacterial activity, various other acids are produced from the ingesta and find their way into the circulation, rendering the blood subalkaline, and it would appear that this subalkaline blood renders the tissues a fit culture medium. Then, through depressing agents, such as cold, worry, over-exertion, the resisting power is lost and the disease begins. The arthritic diathesis is undoubtedly inherited, for we see many manifestations of it cropping out in the different members of the same family or various signs of it in the same individual. That it can also be acquired is generally conceded. It, therefore, seems rational to forestall acute attacks by a line of treatment which increases metabolism, favors oxidation and prevents the development of the acids alluded to. As a clinical fact, prophylactic measures along this line are successful.

Of more than passing interest are the various complications we have to deal with, chief of which is endocarditis, occurring in one-third of all cases, also myocarditis and pericarditis, safe rules for the treatment of which are laid down in the text-books. Purpura rheumatica, peliosis

rheumatica, urticaria, etc., are interesting, as they show blood dyscrasia and involvement of the vasomotors. In these, in addition to the antiseptic treatment, iron and strychnine are indicated, and strict attention to the digestive tract must be maintained. Meningitis is not so infrequent and is not always attended by hyperpyrexia. When it antedates the joint involvement, as I have seen it do, the diagnosis of rheumatism is well-nigh impossible. It yields, however, if at all, to salicylic treatment in connection with ice-bag, bromides and chloral.

Pneumonia is always a serious complication and frequently is fatal. Salicylic acid, strychnine and digitalis must be relied upon. Hyperpyrexia is best combated with the Brand cold bath, giving stimulants if necessary. Nausea is a serious condition and often forbids medication by mouth. Inunctions of methyl-salicylate with lanolin can here be employed with good effect. After the acute symptoms have subsided the anemia and debility must be combated in the usual way, and by keeping in mind the infectious nature of the disease our restorative treatment will be guided accordingly.

To sum up: I believe that inflammatory rheumatism is an infectious disease; that its natural history points to this, its complications point to it, and the treatment found so effective proclaims it.

I believe that in salicylic acid and its compounds, we have an effective means of combating the disease, but if we expect results we must give it in full doses; that only grave albuminuria is a contraindication to its use, and possibly that objection is more fancied than real. No doubt the day is not far distant when the complete etiology of the disease will be known and perhaps then a better mode of treatment will be evolved. Until then we must hold fast to what we have, knowing full well that the present-day treatment, judged by its effects, holds a distinct supremacy over all its predecessors.

TWO CASES OF RUPTURE OF THE RIGHT LOBE OF THE LIVER; LAPAROTOMY, RECOVERY.[1]

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RUPTURE of the liver is one of the rarer injuries demanding surgical interference. It is, likewise, accompanied by a high mortality, placed by Mayer at 86.6 per cent. and by Edler at 85.7 per cent. The high mortality is due to the severe shock and loss of blood and to the lateness of operative interference.

The two cases I have the pleasure to report came under my notice within about a fortnight of each other, and have many points of common interest. In both cases there was a direct blow over the right side of the trunk with a rupture on the under surface of the right lobe of the liver, evidently due to bending of that organ. In both, the immediate shock was so great that operative intervention was impossible for a number of hours. At operation in each case the abdominal cavity was filled with fluid and clotted blood, the hemorrhage having ceased entirely in one case, while it was merely an oozing in the other, at the time of operation. Both cases made an uneventful recovery and are now, two and a half years later, enjoying good health.

Case I.—Female, twenty-one years of age, on May 30, 1897, was violently thrown from a tally-ho, which was struck by a rapidly moving train. She was received in St. John's Hospital, Brooklyn, some four hours later. At that time shock was extreme, pulse almost imperceptible, skin anemic, and patient semi-conscious. It was evident that in addition to the shock a severe internal hemorrhage had taken place. There were several fractures of the extremities and fracture of the ninth and tenth ribs on the right side. Examination of the abdomen showed some distention and flatness in both lumbar and inguinal regions. The catheter withdrew from the bladder about three ounces of nearly pure blood. Active stimulation and infusion were resorted to. The following morning the patient's general condition was slightly improved; the catheter evacuated about six ounces of slightly blood-stained urine. It was decided to make an exploratory operation and this was done on June 1st, eighteen hours after receipt of the injury. After thorough preparation of the skin of the abdomen, and under ether anesthesia, a median abdominal incision was made just above the umbilicus. Immediately the peritoneum was opened there escaped a large quantity of fluid and clotted blood, estimated at two quarts; the hand was then introduced and the liver explored. A rent, two and one-half inches long and an inch and a half deep, of the under surface of the right lobe could be plainly felt and by extension of the incision slightly upward it was exposed. On viewing this it was discovered that all active hemorrhage had ceased. Further exploration revealed several small ruptures on the surface of the spleen, but from none of these was there active hemorrhage. The blood and clots were then rapidly removed from the peritoneal cavity and the abdomen left perfectly clean. The abdominal wound was then closed by layer sutures. The patient rallied quickly from the operation and made a rapid and uninterrupted recovery, the wound healing by primary union. In this case we had to deal with both a rupture of the liver and of the speen and also probably of the kidney.

Case II.—Male, forty-four years of age, car-coupler, on June 16, 1897, was caught between two cars while at his work. He was brought to the Norwegian Hospital about three-quarters of an hour after the injury. On admission he was suffering much shock and showed signs of internal hemorrhage. Immediate operation was

[1] Read at the annual meeting of the Medical Society of the State of New York, Albany, N. Y., February 1, 1900.

proposed, and refused by patient, as he had had a similar injury a year before and recovered without any intervention. His condition slowly but continually grew worse in spite of vigorous stimulation, and twelve hours later he consented to operation. After proper preparations a median incision was made and on opening the abdomen there was a profuse discharge of fluid blood, between two and three quarts; the liver was immediately sought and on its under surface was found a rent an inch and a half in length and two inches deep. From the surface was a steady but moderate flow of blood. Pressure by means of a gauze tampon held in place for five minutes completely checked the bleeding. Two fine catgut sutures were then introduced and the liver wound closed. Thorough toilet of the peritoneal cavity was made and then the abdominal incision closed by layer sutures. At the close of the operation the patient was in very weak condition, but under stimulation of strychnine and whiskey, hypodermatically given, and coffee enemata, a rapid response was obtained. His recovery was rapid and uninterrupted, the patient being discharged from the hospital at the end of the third week.

The question of when to operate in these cases is the all important one and must be decided for each case individually. In the first case reported had operation been immediately resorted to I have no doubt a fatal issue would have resulted, while in the second case the delay made necessary by the patient's refusal of operation nearly cost him his life.

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REPORT OF BACTERIOLOGICAL INVESTIGATIONS UPON YELLOW FEVER.

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(Continued from p. 212.)

Experiments with Heart-Blood in Attempts at Infection.

THESE experiments could not have been undertaken at Santiago de Cuba, for obvious reasons. The method employed was to draw blood in large sterile Sternberg bulbs from the heart cavities of individuals dead of yellow fever; this blood was as sonn as possible (within one or two hours) injected into the peritoneal cavity or subcutaneously, macerating the clot if necessary. Usually only blood serum was obtained from the heart.

September 18, 1899.—Guinea-pig No. 30; weight 300 grms.; given intraperitoneal injection of 3 c.c. of bloody serum from the heart of autopsy No. 18 one hour after the autopsy (eleven hours after death). It recovered.

September 18, 1899.—Rabbit No. 35; weight 1020 grms.; subcutaneous injection of 3 c.c. of bloody serum from autopsy No. 18. September 20th. It has developed a large abscess at the seat of inoculation; weight 996 grms.

September 22d.—Abscess ruptured; discharge of bloody pus; weight 990 grms.

September 24th.—Abscess cavity is closing; weight 998 grms. This rabbit finally recovered. Aside from the loss in weight and the presence of the abscess, he showed no sign of sickness after the second day.

October 27, 1899.—Guinea-pig No. 34; weight 430 grms; subcutaneous injection of 2 c.c. of bloody serum from heart of autopsy No. 21, a half hour after autopsy (thirteen hours after death). October 28th.—Apparently very sick; weight 426 grms. October 29th.—Abscess at point of inoculation. October 31st.—Died during the night. Cultures from organs gave negative results as far as bacillus icteroides is concerned.

October 27, 1899.—Guinea-pig No. 36; weight 620 grms. Intraperitoneal injection of 3 c.c. of bloody serum from the heart of autopsy No. 21. October 28th.—Is very sick; weight 612 grms. October 29th.—Has eaten some food; locomotion is impaired. It finally recovered with a contracted hind leg.

October 27, 1899.—Rabbit No. 37; weight 1086 grms.; intravenous injection of 1 c.c. of bloody serum from the heart of autopsy No. 21. October 30th.—It has been sick for the last three days, but is better to-day. It finally recovered.

November 12, 1899.—Guinea-pig No. 38; weight 380 grms; intraperitoneal injection of 3 c.c. of bloody serum from the heart of autopsy No. 23 a half hour after autopsy (thirteen hours after death). November 13th.—Apparently sick. November 14th.—It is more lively. Finally recovered.

November 12, 1899.—Guinea-pig No. 39; weight 437 grms; subcutaneous injection of 1 c.c. of bloody serum from the heart of autopsy No. 23. November 16th.—An abscess has developed which contracts the hind leg on the side of the inoculation. It finally got well, with a permanently contracted leg.

November 12, 1899.—Rabbit No. 40; weight 1072 grms; intravenous injection of 2 c.c. of bloody serum from the heart of autopsy No. 23. November 13th.—Died during the night. Cultures from the liver, kidney, bile and urine remained sterile; cultures from the spleen and heart-blood gave three organisms: a staphylococcus and two colon bacilli, one of which is pathogenic, the other not. The pathogenic bacillus produces death in guinea-pigs in doses of from 3 c.c. to 4 c.c., intraperitoneally, subcutaneously it forms abscess. Bacillus icteroides was not present.

It has not been possible to produce any disease even remotely similar to yellow fever by the experiments above outlined. In fatal cases the lesions were either purely local or the result of septicemia.

Agglutination Tests.

The efforts to ascertain the "clumping" power of yellow fever serum were directed principally against bacillus icteroides.

The results have been as expected, regularly

negative, whenever the degree of dilution and time limit were taken into consideration. In all, fifty-four tests were made with blood taken from the ear-lobe. (See table IV.)

The accompanying table will show at a glance the fact that bacillus icteroides is not distinctly affected by the action of yellow fever serum. In the two instances, with the blood of Jas. M. Hays

TABLE IV.

Name.	Day of the Disease.	Dilution.	Time Limit.	Result.
Pascual Rodriguez.	Convalescing.	1-10	30 minutes.	Arrested motility.
Tom Buchanan ...	12th.	1-10	30 "	Negative.
Mike Deveny	5th.	1-10	30 "	"
J. P. Thomas. ...	15th.	1-10	30 "	"
J. G. Thatcher....	11th.	1-10	30 "	"
Geo. Woods.....	9th.	1-10	30 "	"
Lant Sears	4th.	1-10	30 "	"
Wm. Demuth	4th.	1-10	30 "	"
B. Dadd.....	5th.	1-10	30 "	"
Wm. Shew	11th.	1-10	30 "	"
Fred Morrell.....	3d.	1-10	30 "	"
Wm. Mooney.....	5th.	1-10	30 "	"
Jas. M. Hays	4th.	1-10	30 "	Arrested motility.
" "	5th.	1-10	30 "	Arrested motility.
Luis Colome	8th.	1-10	30 "	Negative.
J. J. Dougherty...	7th.	1-10	30 "	"
Burton Fowler....	8th.	1 10	30 "	"
" "	12th.	1-10	30 "	"
" "	15th.	1-10	30 "	"
Anthony Weidner.	5th.	1-10	30 "	"
" " .	12th.	1-10	30 "	"
Tim Healy.....	5th.	1-10	30 "	"
" "	9th.	1-10	30 "	"
Stephen Scanlan ..	6th.	1-10	30 "	"
" " ..	Convalescing.	1-10	30 "	"
" " ..	"	1-10	30 "	"
Henry R. Clay....	9th.	1-10	30 "	"
" "	12th.	1-10	30 "	"
Chas. Allison	8th.	1-10	30 "	"
" "	Convalescing.	1-10	30 "	"
Clifford Calhoun ..	5th.	1-10	30 "	"
R. Graves	7th.	1-10	30 "	"
Ed. Vragel	8th.	1-10	30 "	"
" "	Convalescing.	1-10	30 "	"
M. Harper.....	"	1-10	30 "	"
Jas. Hilton	9th.	1-10	30 "	"
J. Thorsby.....	9th.	1-10	30 "	"
Chas. Mitchell	7th.	1-10	30 "	"
" "	Convalescing.	1-10	30 "	"
Max Thompson...	9th.	1-10	30 "	"
Dan Coleman.....	9th.	1-10	30 "	"
Chas. Rodgers....	8th.	1-10	30 "	"
" "	13th.	1-10	30 "	"
Sigis'd Fichmann..	6th.	1-10	30 "	Arrested motility.
" " ..	7th.	1-10	30 "	Negative.
" " ..	8th.	1-10	30 "	Arrested motility.
" " ..	8th.	1-20	1 hour.	Negative.
" " ..	8th.	1-20	2 hours.	"
Stanley Embick ...	Convalescent.	1-10	30 minutes.	"
E. Bubeck.....	"	1-10	30 "	"
Henri Buverrier...	"	1-10	30 "	"
Wm. Stokes.....	"	1-10	30 "	"
P. Peterson.....	"	1-10	30 "	"
J. O. La Fontissee.	"	1-10	30 "	"

and S. Fichmann, the bacilli were certainly arrested in their motility and a positive reaction seemed about to take place, but repeated experiments failed to confirm this. The case of Hays is of some interest from the fact that bacillus icteroides was isolated after death.

Bacillus icteroides can be said to be agglutinated in the proper dilution and time limit only by the serum of animals infected with itself (B. icteroides) and by the serum of hog-cholera, evidently its own nearest kin. If time limit is of no account when dealing with this organism, as it might be inferred from reading Drs. Wasdin and Geddings' report, in which they state having waited three hours for a reaction (pp. 15 and 79), then we find that bacillus icteroides is agglutinated or its motility arrested by the serum not only of yellow fever cases, occasionally, but also of healthy individuals, non-immunes, as well as by that of typhoid fever and other patients and by the normal serum of some of the lower animals.

Immunizing Power of Yellow-Fever Convalescent's Serum against the Bacillus Icteroides of Sanarelli.

The serum obtained from convalescent yellow fever patients has no protective power against bacillus icteroides injected in the doses ordinarily employed with the known antitoxic serum of other micro-organisms.

Before arriving at this conclusion a number of experiments were made, as follows:

June 5, 1899.—Guinea-pig No. 12; weight 320 grms; subcutaneous injection 0.3 c.c. of a 24-hour bouillon culture bacillus icteroides (control). Died in 30 hours; bacillus icteroides recovered from blood and viscera.

Guinea-pig No. 13; 300 grms; subcutaneous injection 0.3 c.c. same culture as above, also 2 c.c. of blood serum from Pascual Rodriguez. (This serum slightly arrested the motility of bacillus icteroides.) Died in the night of June 6th. Bacillus icteroides recovered from the blood and viscera.

Guinea-pig No. 14; weight 325 grms; subcutaneous injection 0.4 c.c. came culture as above, also 2 c.c. blood serum from Pascual Rodriguez. Died in 3 days; bacillus icteroides recovered.

June 9, 1899.—Dog No. 15; weight 8½ lbs; intravenous injection 15 c.c. of serum from Pascual Rodriguez and through the same needle; 15 minutes afterwards 5 c.c. of a 24-hour bouillon culture bacillus icteroides isolated from Patrick Smith. He developed fever, vomiting and diarrhea, which lasted five days. The animal died June 14th. Bacillus icteroides was recovered from the viscera and heart-blood.

September 14, 1899.—Guinea-pig No. 26; weight 460 grms; subcutaneous injection 0.5 c.c. of a 24-hour bouillon culture bacillus icteroides (control). Died September 10th, P.M.; bacillus icteroides recovered.

Guinea-pig No. 27; weight 626 grms; subcutaneous injection 0.5 c.c. of same culture as above, also 3 c.c. of serum from Ed. Vragel. Found dead September 16th; bacillus icteroides in abundance recovered from the blood and viscera.

Guinea-pig No. 28; weight 324 grms.; subcutaneous injection 0.5 c.c. of same culture as above, also an intraperitoneal injection of 4 c.c.

of blood serum from Ed. Vragel. Died September 16th, A. M.; bacillus icteroides recovered.

Rabbit No. 29; weight 1066 grms.; subcutaneous injection of 1 c.c. of same culture as above, also an intravenous injection of 4 c.c. of serum from Ed. Vragel. Died September 18th; bacillus icteroides recovered.

October 23, 1899.—Guinea-pig No. 31; weight 620 grms.; subcutaneous injection of 0.8 c.c. 24-hour bouillon culture bacillus icteroides (to test its virulence). Died October 25th and bacillus icteroides was recovered.

Dog No. 32, weight 12 lbs.; given an intravenous injection of 15 c.c. of blood serum from Henri Duverrier. A half-hour afterwards, a second intravenous injection of 6 c.c. of same culture used on guinea-pig No. 31. The animal was sick for five days and died in convulsions October 28th. The viscera were much congested, the liver showed fatty changes and there were small subpleural hemorrhages. Bacillus icteroides was recovered from the blood and viscera. From the early experiments we were led to hope that if not decidedly protective, at least the serum of immune individuals might enable us to prolong the life of infected animals; the subsequent results, however, soon undeceived us and we plainly saw that it exerted no greater influence than would the injection of any other serum under the same circumstances.

The Serum of Convalescent Yellow-Fever Patients.

The writer firmly believes in the bacterial origin of yellow fever. Having met with general disappointment in the search for the real organism and completely lost faith in the specificity of bacillus icteroides, he desired to undertake a series of experiments to determine what curative power, if any, existed in the blood serum obtained from men who lately had the disease. It was logical to believe that the immunity conferred upon these individuals must be due to the formation of some antitoxic principle, and it was also logical to think that this antitoxin might after careful study and experimentation be of incalculable value, not only as a therapeutic means in properly selected cases, but more so as a prophylactic by its injection into non-immune subjects, in doses to be determined. But it was necessary to seek for evidence that would tend to corroborate this theory and with that purpose in view we wrote you from Santiago on July 9, 1899, as follows: "Is there any danger in injecting the serum of these recent immunes into yellow-fever patients, in an attempt to counteract the action of the yellow fever toxin, especially if care is taken in obtaining the blood from men who are otherwise well? I mean without syphilitic or tubercular taint.

"In view of the apparent slight risk, if any, and the great benefit that would be derived therefrom if successful, I think a trial would be warranted. The more I have thought upon this the more I am inclined in its favor; I am well aware of the fact that such experiment would perhaps be unprecedented, but that alone would not deter me from undertaking it. But I may have considered this subject from an erroneous standpoint; if that is the case, I would like to have you point out my error to me, and it is needless to say that I shall profit by your advice and certainly desist from further consideration of the matter."

We were honored by your approval and the consent to undertake the experimental injections. Your letter reached us too late to enable us to do anything in Santiago, but upon our return to Havana we began to work in this direction.

The serum was obtained of convalescents from uncomplicated yellow fever; a careful scrutiny of their previous history was made so as to avoid bleeding men who had any syphilitic or tubercular antecedents; we also refused blood from individuals subject to rheumatic, gouty or any other diathesis or from men addicted to alcoholic drinks. This necessitated the discarding of numerous cases so that the serum collected was less in quantity than it would have been under different conditions. The fact was that we desired to surround these injections by such safeguards as might do away with such criticisms as the work, heretofore unprecedented, would call forth from those who never had the courage to put it into practise if they ever did have the conviction of the rationale of the subject.

The method employed in obtaining the serum was as follows: A convalescent was selected who had sufficiently recovered to afford the slight loss of blood (about one week or ten days after entering into convalescence). The right arm up to the shoulder was thoroughly scrubbed with soap and water, then with a solution of bichloride of mercury (1-1000) and, finally, with ether and sterile cotton, particularly around the elbow-joint; a bandage was placed about the upper arm sufficiently tight to interrupt the venous circulation; a puncture was made with a lancet into one of the engorged superficial veins, and the blood stream was received into a sterile, cylindrical glass graduate. If the flow of blood tended to diminish, the man was instructed to forcibly open and close his hands several times, when the flow would quickly be re-established. After 24 hours in an ice-chest at about 20° C., the supernatant serum is syphoned from the glass cylinder into a conical Pasteur flask, where it is decanted, so as to later secure the serum as free from red corpuscles as possible. It is unnecessary to detail here the antiseptic precautions by which the entire process was surrounded. From 120 c.c. to 300 c.c. have been drawn at a sitting and no convalescent has been subjected to more than one bleeding. At no time have we met with any difficulty in obtaining consent to be bled, nor have any untoward symptoms resulted from the amount of blood drawn.

If opportunity is afforded for the continuance of these experiments (and we earnestly hope that it will be) we think that the beneficial results

might be aided, in the presence of an epidemic, by the use of a centrifugal machine that will do away with the time necessary for the natural separation of the clot and serum. At the same time the serum will be carried from the immune to the patient within ten minutes of time, the latter receiving the leucocytes in a live state which, if they exert any influence upon the protective principle, as we believe they do, will certainly increase the therapeutic value of the injections. By the use of such apparatus a large quantity of serum will be obtained, requiring that a very small quantity of blood be taken at a sitting and thus allowing the employment of other methods than the old-time bleeding for its obtainment.

The number of convalescents subjected to this operation was as follows:

June 4, 1899.—Pascual Rodriguez, civilian, about forty years of age; in the third week of convalescence. From a vein at the elbow 184 c.c. of blood were drawn; it yielded 53 c.c. clear serum.

September 26, 1899.—Chas. Allison, civilian, thirty-one years. The day before his discharge from the hospital, 250 c.c. of blood were obtained from a vein at the elbow; it yielded 67 c.c. of clear serum.

September 10, 1899.—Ed. Vragel, private, I, 2nd Artillery, nineteen years. Two days before his discharge from the hospital we obtained 120 c.c. of blood form a vein at the elbow, which yielded 20 c.c. of clear serum.

September 16, 1899.—Chas. Mitchell, Corp., B, 2nd Artillery, thirty years. Two days before his discharge from the hospital we obtained 230 c.c. of blood from a vein at the elbow; it yielded 60 c.c. of clear serum.

September 17, 1899.—Stanley Embick, 2nd Lieut., B, 2nd Artillery, twenty-three years. Three days before his discharge we obtained 250 c.c. of blood from a vein at the elbow, which yielded 65 c.c. of serum.

September 19, 1899.—Earnest Bubeck, private, K, 2nd Artillery, twenty-three years. The day before his discharge 300 c.c. of blood were drawn from a vein at the elbow; it yielded 85 c.c. of serum, most of which became contaminated in manipulation.

October 22, 1899.—Henri Duverrier, civilian, twenty-two years. The day before his discharge from the hospital (Los Angeles) we obtained 200 c.c. of blood from a vein at the elbow; it yielded about 55 c.c. of serum.

October 23, 1899.—Wm. Stokes, civilian, twenty-three years. Four days before his discharge we drew 300 c.c. of blood from the arm, which yielded 64 c.c. clear serum.

October 31, 1899.—Peter Peterson, civilian, twenty years. The day before his discharge we obtained 200 c.c. of blood from a vein at the elbow; it yielded 40 c.c. of clear serum.

November 24, 1899.—J. O. La Fontissee, civilian, twenty-seven years. One week after his discharge from the hospital we obtained 250 c.c. of blood from a vein at the elbow, which yielded 55 c.c. of clear serum.

Some of the serum here recorded was used in experiments, as detailed in a previous chapter and a good quantity was set aside as being slightly cloudy or too highly tinged with dissolved hemoglobine, so that a comparatively small amount was employed in the following cases:

Case I.—James Gavin, civilian, seaman, forty-one years of age, admitted to hospital in the afternoon of October 11th, 1899. The patient says he has never been sick since fifteen years ago, when he had rheumatism. His habits are bad, and he confesses to being an habitual drunkard. He has lived one month in Havana. On the 9th at midnight he experienced a slight chill, severe frontal headache, rachialgia and myalgia. On the 10th, he felt better, but on the 11th became worse again and vomited everything he took; he was then sent to the hospital, where he was placed in the "suspect ward." Oct. 12.—The diagnosis of yellow fever is made. The patient's condition is made worse by the severe gastric irritation, which induces almost constant vomiting and retching. At 2 P. M. he is given an injection of 18 c.c. of serum (marked Embick, 9-18-99) under the skin of the outer aspect of the left thigh, his temperature being 103° F.; pulse, 58; respiration, 22. The urine contains about 6 per cent. of albumin. Oct. 13th., A. M.—All night the temperature has ranged around 104°. At 9:15, temperature, 102.8°; pulse, 68. "Did not like to ask nurse for urinal," so he had passed urine in bed. The lithia water that was given caused him to vomit three times, gastric juice and mucus only; complains of constant "water-brash" and "heart-burn." Urine contains about 20 per cent. of albumin (a rough estimate of moist albumin). Oct. 13th, P. M.—The gastric irritation continues. The patient retained a small quantity of malted milk; he vomits only gastric juice and mucus. At 2 P.M. temperature, 103° F.; pulse, 70; respiration, 22. A second injection is given on the other thigh, 18 c.c. serum (marked Mitchell, 9-18-99). Oct. 14th, A.M.—There was no reaction after yesterday's injection. The temperature has gradually come down to 100.4° F.; pulse, 68; respiration, 16. In spite of the uncontrollable nausea and frequent vomiting there has been nothing like "black vomit." Not even the so-called "fly-wing" specks have appeared in the acid mucus thrown up. The prostration is great, but the headache has been relieved. I ordered five grains of bicarbonate of soda every three hours in an effort to relieve the gastric hyperacidity. A remarkable feature in the clinical picture which this case presents is the entire absence of hemorrhagic tendency from any of the mucous membranes, so that we have a typical case of yellow fever infection without the bleeding from gums, mouth, stomach, intestines or into the skin. The icterus is present, well marked in skin and sclerotics, also the non-correlation of temperature and pulse and the albumin in the urine. There is a slight puffiness of the gums but no more than he had on admission. Aside

from this absence of hemorrhage, the fact that the man's mind is unusually clear and that the pulse and temperature show an inclination to come nearer together, makes me consider the patient's condition very critical. Oct. 15, A.M.—The temperature has now come down to 100° F.; pulse, 70. The patient, although extremely prostrated by the continuous retching, is perfectly lucid in mind; he asks for the bed-pan when in need of it, and complains of nothing but weakness. There is no headache; the amount of urine passed in the last twenty-four hours is 1000 c.c. Oct. 15th, P.M.—The nausea continues without actual vomiting, but even a question as to the condition of his stomach causes him to retch; the thermometer introduced into his mouth induces retching. The pulse is so thin and compressible that I decide to give one-sixtieth of a grain of strychnine hypodermically. Although all the signs of yellow fever infection have subsided I fear to lose the patient through cardiac failure. With the same purpose in mind, stimulation, he is given a third injection of convalescent's serum, 20 c.c. (marked Mitchell, 9-18-99). The temperature at this time is 100.8° F.; pulse, 80; respiration, 20. Oct. 16th, A.M.—The patient passed a rather comfortable night, although the gastric irritation, less intense, continues. From 4:30 P.M. yesterday to 9 o'clock this morning the patient has voided 280 c.c. of urine, containing about 10 per cent. of albumin. He sleeps a great deal. Temperature, 97.8° F.; pulse, 68; respiration, 20. Oct. 16th, P.M.—The man says he only feels weak, and begs to be disturbed less and permitted to sleep longer intervals. His request is granted. His mind is perfectly clear, and the efforts at vomiting occur less frequently. Oct. 17, A.M.—During the last twenty-four hours the patient has passed 2013 c.c. of urine; it contains about 10 per cent. of albumin. There has been no vomiting since last night. Patient says he is hungry. Temperature, normal; pulse, 68. Small quantities of beef extract are allowed. Nothing in the way of medication except the strychnine has been given in this case, and we believe that the first two injections of serum were sufficient to counteract the yellow fever toxins; there was no indication for the third injection except the exhaustion due to the accidental presence of the gastritis, and it was administered as a tonic only. Oct. 18th, A.M.—The patient continues to do well, is still hungry, and has no more gastric disturbance. Has passed 1945 c.c. of urine during the last twenty-four hours. Albumin about 3 per cent. less than at any time during his illness. He made a rapid convalescence.

Case II.—A. D., thirty years of age, a cattle-dealer. He arrived in Havana two months ago. On the 15th of October at about 4 P.M. he felt chilly after a shower-bath and lay down to sleep. At about 7 P.M. he awoke with general malaise. During the following night he had a severe headache; next morning felt feverish, rachialgia and nausea. A physician was called, who prescribed a calomel purge followed by a dose of magnesia. We saw the case the following morning. Oct. 17, 1899, A.M.—Temperature, 102.2° F.; pulse, 74; respiration, 22. The face is much flushed, also the neck and chest, with some capillary stagnation. He says that he feels well, except for "that pain in the back." The conjunctivæ and gums are much congested; the latter are swollen, the tongue slightly furred and dry, the papillæ enlarged, the border indented by the teeth. The epigastric tenderness is marked; there is some constant and distressing nausea, but no vomiting. The spleen is enlarged, also the liver; neither one is tender to pressure; the patient says that he suffered repeatedly from attacks of malaria in Missouri, about two years ago. He never had rheumatism, but had gonorrhea up to one month ago. He does not drink to excess. Diagnosis of yellow fever seems clear. He lives at home and is properly isolated. Oct. 17th, P.M.—Temperature, 100.4° F.; pulse, 70; respiration, 22. He feels well enough to get up, except for some slight headache. This morning's urine contains 0.50 grm. of albumin per liter (Esbach's albuminometer), also pus-cells and epithelium. The patient is given a subcutaneous injection of 20 c.c. of serum (marked Bubeck, 9-19-99) at the outer aspect of the left thigh. He is allowed to drink Apollinaris water and lemonade. Oct. 18th, A.M.—Temperature rose at 9 P.M. to 102.4°; pulse, 72; respiration, 24. At 10 P.M. it was necessary to draw 300 c.c. of urine by catheter. Soon after he vomited a small amount of clear gastric juice. Temperature, 101.2° F.; pulse, 70; respiration, 20. He complains of a gnawing sensation at the stomach, but has no nausea; there is tenderness on slight pressure. At 6 P.M. he voided 250 c.c. of urine containing 1 grm. of albumin per liter (Esbach's albuminometer), also epithelial bladder and kidney cells. Oct. 19th, P.M.—It was impossible to see the patient this morning. The temperature was down to 100° F.; pulse, 68; respiration, 20; but at present it is 101.4°: pulse, 70; respiration, 22. The gums are puffy and ready to bleed if pressed upon. Vomited clear mucus during the night; he seems much prostrated. The stools have been yellow; the enemata have brought forth only mucus or yellow feces. During the last twenty-four hours he has passed 1268 c.c. of albuminous urine, 0.50 grm. of albumin to the liter (Esbach's); also some bladder epithelium and hyaline casts. At 4 P.M. he is given a second injection of convalescent's serum (marked Bubeck, 9-19-99) 20 c.c. under the skin of the other thigh. Oct. 20th, A.M.—The patient passed a comfortable night. At 8 P.M. last night the temperature was 100.6° F.; pulse, 66; respiration, 20. Through a slight misunderstanding, the attending physician ordered some broth given, which was immediately vomited; at 8 P.M. the patient's general condition is much improved; his eyes are tinted yellow, the skin slightly so. There is no pain or tenderness at the site of the injections. There was no reaction after yesterday's injection. There is barely any epigastric

tenderness. Patient would like to have some food. Oct. 21st, A.M.—Patient sitting up in bed. Says he is hungry. The sclerotics and skin are very yellow. Temperature, 99° F.; pulse, 64; respiration, 18. He says that he is very weak, but asked his nurse to sit up, because "his bones ached from lying in bed." The patient is evidently entering into convalescence at the sixth day after invasion. The urine still contains albumin in small quantity. The absence of any hemorrhage is remarkable, and considering the severity of the initial symptoms it can only be attributed to the antitoxic effects of the serum. This man made an uninterrupted recovery.

Case III.—B. F. Markwood, about twenty-four years old, admitted Oct. 24, 1899. The patient was taken sick with nausea and vomiting on Oct. 22d. He lived in the same tent at Cabañas Fortress with a man who developed yellow fever at the same time, and died of it; he had also been exposed to infection from a case in the same camp a week before. He had been ill two days before he began to vomit, with headache and "bone-aches." He has vomited "brown stuff" twice. Says he does not drink to excess. He never had venereal disease nor malaria or rheumatism, but had scarlet fever when a boy. Oct. 24th, P.M.—On admission, temperature, 103° F.; pulse, 74; respiration, 20. He complains of a gnawing at the stomach, headache, and rachialgia. There is some bleeding from the mouth, the gums and conjunctivæ are very congested, the latter have a distinct yellowish tint. There is capillary stagnation at the neck and chest. He is given 20 c.c. of serum (marked Stokes, 10-23-99), under the skin of left thigh. Albumin in urine on admission, 1 grm. per liter (Esbach's). Looks like a case in the fourth or fifth day after invasion. Oct. 25th, A.M.—After yesterday's injection the temperature rose to 103.6° F.; pulse, 74; respiration, 24. During the night it ranged around 102.6° F. At present, temperature, 102.4° F.; pulse, 78; respiration, 25. At 1:20 A.M. he had a "black vomit" and some hemorrhage from the gums; at 3:40 A.M. he again vomited a quantity of mucus with some "fly-wing" specks. The gums do not bleed at present. He complains of epigastric pain and headache which "comes and goes" at times. Oct. 25th, P.M.—The hemorrhages have ceased. Temperature, 103.6° F.; pulse, 76; respiration, 24. The pulse is full and compressible. There is great depression. He is given a second injection of 20 c.c. serum (marked Duverrier, 10-22-99). Has passed 868 c.c. of urine during the twenty-four hours; it contains 1 grm. per liter (Esbach) red blood-corpuscles, granular and epithelial casts in quantity. Oct. 26th, A. M.—The patient spent a rather comfortable night. The injection yesterday produced no reaction. The temperature from 103° came down to 102° three hours afterward; at present temperature, 102.8° F.; pulse, 87; respiration, 23. Has not vomited during the last twenty-four hours. His expectoration is streaked with blood; the gums bleed slightly. He complains of feeling hungry. He is allowed 25 c.c. malted mik every three hours. Oct. 26th, P.M.—The patient vomited the malted milk, which was immediately discontinued; he complains again of nausea and gastric distress. Temperature, 103° F.; pulse, 80; respiration, 26. Petechial spots have appeared over the arms and chest. He is allowed to drink lemonade and lithia water. He has passed 1990 c.c. of urine in twenty-four hours. It contains 1.50 grm. albumin to a liter (Esbach), numerous renal cells in fatty degeneration, granular and epithelial casts, some pavement epithelium and many fat globules. Oct. 27th, A.M.—The patient is very thirsty and complains much of abdominal pain. It was necessary to draw 120 c.c. by catheter last night. Temperature, 98.8° F.; pulse, 99; respiration, 30. There is great prostration and the numerous purpural spots are ominous of a fatal termination. Oct. 27th, P.M.—At 2:15 P.M. the temperature was 98.8° F.; pulse, 98; respiration, 38. There have occurred two "black-vomits." Enemata bring out tarry particles. There is great pain and marked kidney impairment. Warm baths, dry cupping, etc., have not seemed to affect the elimination. He has passed but 360 c.c. of urine in twenty-four hours; it contained albumin, 1.50 grms. per liter (Esbach), numerous red blood-corpuscles, free fat globules, renal and ureter epithelium, granular and epithelial casts. Oct. 28th.—The man died at 2:05 A.M. after a vomiting spell. It was after much questioning of the patient and his friends that we confirmed the suspicion that when admitted to the hospital on Oct. 24th, he was in the fifth day of his disease, or else we would never have injected him with serum, for we know that cases admitted at this stage of the infection usually terminate fatally.

Case IV.—John W. Buckman, twenty-eight years of age, sailor, admitted Oct. 26th. The patient has been living at Cabañas Hill with carpenters at work on the fortress. He was taken sick on the 25th, when he felt ill and his head began to ache; pains in the back and legs came afterward. Vomited at 3 in the morning, subsequently feeling much better. He is a constant drinker. Oct. 26th, P.M.—The patient complains of chilly sensations, the face is flushed, eyes injected, gums swollen, tongue badly coated, and breath offensive. His pulse is full and regular. He has a dull expression, is blue-eyed and fair-skinned. Temperature, 103° F.; pulse, 86; respiration, 20. We gave him 15 c.c. of convalescent's serum (marked Duverrier, 10-22-99). Oct. 27, A.M.—At 10 P.M. last night it was necessary to draw 770 c.c. of urine by catheter; it contained traces of albumin, fat globules, a few pavement epithelia. Temperature, 101.2° F.; pulse, 76; respiration, 22. Oct. 27th, P.M.—The patient was again catheterized and 475 c.c. of urine withdrawn. He is resting quietly and says he feels comfortable. The heart action is good. Temperature, 102.2° F.; pulse, 84; respiration, 27. The face and neck are very much congested.

We gave him 15 c.c. of serum (marked Duverrier, 10-22-99). Oct. 28th, A.M.—Temperature, 100.8° F.; pulse, 74; respiration, 22. He has voided 525 c.c. of urine this morning and feels otherwise well except for a slight gastric tenderness. Oct. 28th, P.M.—The patient complains of nothing but slight gastric pain He has slept a good part of the day. The urine contains 0.25 grm. of albumin per liter (Esbach's albuminometer), a few epithelial cells and mucus. Oct. 29th, A.M.—The patient says he is hungry this morning. Temperature, 99° F.; pulse, 54; respiration, 20. He complains of some pain in the bones, probably from the prolonged recumbent position. Has passed 1870 c.c. of urine during the last twenty-four hours, containing 0.20 grm. per liter of albumin (Esbach's) and some mucus. Oct. 30th, A.M.—Complains that the beef extract does not agree with his stomach; desires malted milk. The enemata produce pain in the anus; they are discontinued. Temperature, 99.2° F.; pulse, 64; respiration, 20. Has passed 1760 c.c. of albuminous urine during the last twenty-four hours, 0.25 grm. of albumin per liter (Esbach's). Oct. 30, P.M.—The patient has continued to improve; his gastric tenderness has left him. Temperature, 99.2° F.; pulse, 54; respiration, 20. Oct. 31st, A.M.—Our patient spent a very quiet and comfortable night. The pulse, although very slow, is full and regular. He has voided 1465 c.c. of urine in twenty-four hours. It contains a trace of albumin and mucus. Temperature, 98.8° F.; pulse, 50; respiration, 20. This man made a rapid and uninterrupted recovery.

He received but 30 c.c. of convalescent's serum in two injections, one on the second, and another on the third day of his illness. The temperature began to subside after the second injection, and he was practically convalescing on the fifth day after invasion. The onset was severe and the initial symptoms promised a serious case; the fact of his being a "constant drinker" decidedly pointed against a cheerful prognosis There has been no hemorrhagic tendency. The gums became puffy and congested, but never bled; the patient has not vomited at all during his confinement at the hospital in spite of the gastric irritation and the fact that we allowed small quantities of nourishment at stated intervals throughout. Absolutely no other treatment but that outlined here was employed.

Case V.—Guillermo Hernandez, twenty-six years of age, Spanish peddler; has been about ten years in the island, always living in the country, coming to town only for the purpose of buying merchandise. Lately he has resided in the city for about ten days. He has never been sick except with malarial fever, of which he has been suffering for one or two years. Admitted as suspicious yellow fever on Nov. 14, 1899. On Nov. 12th, in the afternoon, he felt chilly and thought he was going to have one of his usual malarial attacks; fever soon followed and then pains over all muscles, bones and small of the back, such as he had not felt with other malarial paroxysms. He has not vomited, but is a little nauseated. Nov. 15th, A.M.—The patient is resting quietly. Temperature, 100.6° F.; pulse, 88; respiration, 28. Complains of body-pains, headache and general malaise; also some colic the result probably of a cathartic that was administered this morning. The patient is dark-skinned with dark hair and eyes. There is some capillary stagnation; a flush, more perceptible on pressure, extends over the face, neck and chest. Slight epigastric tenderness. Eyes congested and the sclerotics stained yellow. The tongue is furred, moist, indented at the edge by the teeth. The gums are congested. The urine contains 0.10 grm. of albumin to the liter (Esbach's albuminometer). He is given subcutaneous injections of convalescent's serum, 35 c.c. in two doses (marked Peterson, 10-31-99). Nov. 15th, P.M.—The temperature has suddenly risen to 105° F.; pulse, 120; respiration, 30. The patient complains of great thirst and of pain in the whole body. Of course it is at once suspected that the man really has malaria and not yellow fever; but the writer is of the opinion that we have to deal with a case of double infection, such as he observed at Santiago, and six of which he has lately reported before the "Societad de Estudios Clinicos" of Havana (*Progreso Medico*, October, 1899). Nov. 16th, A.M.—As expected, the temperature came down during the night to 97°, and it was necessary to administer a small dose of brandy. At present he feels better. Temperature, 100° F.; pulse, 76; respiration, 24. During the last twenty-four hours he has passed 1200 c.c. of urine; it contains 0.25 grm. of albumin per liter (Esbach's), granular and epithelial casts and renal epithelium. The icterus is greater than yesterday. There is slight headache. The tertian malarial parasite is found in his blood. Three grains of quinine are ordered every hour. Nov. 16th, P.M.—The patient complains of epigastric pain, headache and "backache"; there is some nausea. He has vomited twice a quantity of gastric juice and mucus, without any trace of "coffee-ground" matter. Nov. 17th, A.M.—The patient has passed 730 c.c. of urine during the last twenty-four hours, containing 0.25 grm. of albumin per liter (Esbach's albuminometer), also mucin, hyaline and granular casts. At present the temperature is 101° F.; pulse, 78; respiration, 20. The blood shows the presence of a few pigmented leucocytes but no plasmodia. The quinine is discontinued. There has been no evidence of hemorrhagic tendency in spite of the symbiosis which evidently exists in this case. The icterus is marked and the gums are puffy and ready to bleed if compressed. Nov. 17th, P.M.—The patient asks for food. Temperature, 98.8° F.; pulse, 62; respiration, 18. The tongue is coated and rather dry. Nov. 18th, A.M.—The patient has slept well during the night. Temperature, 98° F.; pulse, 52; respiration, 16. During the last twenty-four hours he has voided 1820 c.c. of urine containing 0.50 grm. of albumin per liter (Esbach's albuminometer), a few

hyaline casts and renal epithelium. Nov. 19th, A.M.—The patient continues to do well. The urine still contains a small quantity of albumin and some renal epithelium. He has passed 1220 c.c. of urine in the last twenty-four hours.

Major Ducker is of our opinion that the case was one of yellow fever infection occurring in a malarial cachectic. The high temperature with the low pulse and the marked albuminuria left no room for doubt of the yellow fever infection, while the presence of the malarial organism soon after the sudden rise of the temperature, and its disappearance upon the exhibition of quinine, bore sufficient evidence to the paludic invasion. That cases in which this symbiosis has been observed are more prone to the hemorrhagic tendency than those of a single infection has been pointed out by the writer in the article referred to; yet in this case, as in the other three here recorded, where the convalescent's serum has been administered before the fourth day of the disease, absolutely no hemorrhagic tendency has shown itself. Two things have been forcibly impressed upon us while carrying out these experimental injections; one has been sufficiently noted, *e.g.*, the absence of hemorrhagic tendency; the other is the rapidity with which patients who received the serum went through the period of convalescence; the fever having once left them, their reparative functions were quickly started and they were ready to return to their business in an unusually short period of time.

It may not be untimely to state that there were other patients than those here recorded also treated by serum injections, all of whom recovered, but we have purposely left them out, because through a misunderstanding they were given some medication or other during their illness, in addition to the convalescent's serum, and we fear that if we counted them among the cases who received nothing but serum, their recovery might be attributed to the phenacetine, or the caffeine, or the calomel, or what not, that was given them, and which certainly exerted no action upon the yellow fever toxins. That the serum of convalescents is perfectly innocuous we have demonstrated upon our own person. It is more readily absorbed than the equine serum; but it has never produced any cutaneous manifestation, and within twenty-four hours every sign of the injection has disappeared, except, of course, at the point of puncture, where a minute red spot may be visible. We know, it need not be pointed out to us, that four cases can hardly be considered as sufficient evidence upon which to base any final opinion, but it cannot be denied that the disease has been distinctly modified in every instance (not counting Case No. III, where the serum was administered by mistake at the fifth day of his illness) and we have refrained from injecting (and we shall continue upon the same course) any cases which were seen after the fourth day of the invasion.

There are numerous facts still to be ascertained with regard to this method of treating the disease, not the least important of which is the determination of the power in each individual serum and the amount required in the treatment of each case, but this can only be done after a comparatively large number of cases have been studied, which we believe will be an easy matter in the early future. The therapeutic value of these injections once established on a plain and scientific basis, their immunizing power can more easily be determined, and it is not unlikely that a much smaller quantity than that used in treatment will render the necessary protection to individuals whom we to-day consider as non-immunes. The impending and necessary foreign immigration to this island would be very greatly benefited by it.

CLINICAL MEMORANDUM.

A CASE OF POST-EPILEPTIC AMNESIA.

By DAVID TRUMBULL MARSHALL, M.D.,
OF NEW YORK.

THE following case is reported not because of its extreme rarity, though the general practitioner is not so liable to observe the phenomena as are residents of hospitals for the insane or homes for the epileptic and feeble-minded, but because of the gradual increase of interest that is manifested, especially from a medico-legal point of view, in the protean aspects of this peculiar disease, epilepsy. The amnesic period, ten days, is not very long, yet it was of sufficient length to have allowed the patient to have committed peculiar acts or even crimes had she not been kept at home and promptly restrained by drug influences. The difficulty in obtaining a history of epilepsy was also brought out in the present instance and emphasized the necessity of searching examination, as it was only after the entire period of illness had passed that it was admitted that the patient had ever had any "twitching" movements when she had her "fainting" spells, as they were termed.

Miss B., aged twenty-two years, five feet eight inches in height; weight, 150 pounds; occupation light housework.

Family History.—Her father was a professional man, and was for years a heavy drinker. He died at the age of forty-one years, of "inflammation of the bowels."

The mother still lives, at the age of forty years. She is a healthy woman, although somewhat nervous. One sister, twenty-four years of age, has always had chorea. Two brothers, respectively seventeen and fourteen years of age, are apparently normal.

Personal History.—The patient had measles and diphtheria in infancy, scarlet fever at the age of five years. She has always been well until she began to menstruate, at the age of twelve years. At sixteen years of age the patient began to have peculiar attacks of fainting, with occasional attacks of a more general convulsive nature.

The severe attacks were never of the worst type of *grand mal*. They usually consisted of a stiffening of the limbs and muscles of the face, which lasted for one or two minutes. These attacks have persisted since the age of sixteen, coming on at intervals of one or two weeks. They are apparently more frequent at the menstrual period and after excitement or over-exertion. There was no uniformity in the mode of their onset and they were not preceded by any aura, nor for the majority of instances could a history of hebetude or sleepiness following the attack be obtained. The patient exhibited none of the numerous stigmata often associated with this condition. For a week previous to November 3, 1899, the patient had been cross and moody and suffered more or less from headache.

On October 30th, it being about the time of a menstrual period, the patient began to suffer severely from dysmenorrhea and pain in the ovarian region. On November 2d she had a fainting attack, as her mother expressed it, fell face downward on her bed, and remained motionless for several minutes. No muscular twitchings were noted by her mother. On attempting to arouse her she became violent, tore her clothing and struck at all who came near her. I first saw the patient at this juncture. She was in bed, was talking rapidly and incoherently, and attempted to tear the bed-clothing. Her own night clothing she had torn in shreds. She did not have any knowledge of her surroundings and did not recognize her mother nor sister. As she was so extremely violent, raising her voice, crying and screaming, she was given a hypodermic injection of one-half of a grain of morphine sulphate, which quieted her somewhat for a short time. This dose had to be repeated next day. On the third day she became more quiet, and one one-hundredth of a grain of hyoscine hydrobromate was substituted for the morphine. This was given by mouth two or three times a day.

After the first three days of violent behavior the patient talked and laughed with her friends, but she imagined that she was at a school where she had been when fifteen years of age, and that these friends were teachers and pupils in the school. Her mother, who was in constant attendance upon her, was thought to be the head teacher; and her brother she took to be one of the attendants in the kitchen of the boarding-school.

She had utterly forgotten every impression that she had received since she was fifteen years old. A diagnosis was made of post-epileptic furor followed by some amnesic state, although the mother and sister tried in every way possible to evade a searching history. The diagnosis was confirmed in consultation with Dr. S. E. Jelliffe, and a hopeful prognosis with reference to the immediate condition was given. On the tenth day after the beginning of the attack the patient suddenly became rational, and has remained so since. She has no recollection of any incident which occurred during her illness.

Later investigations revealed a more straightforward history of epilepsy than could be obtained at the time, as it was the desire of the family to keep all knowledge of the facts of her previous attacks from every one in order that matrimonial prospects might not be blighted.

205 West 106th street.

MEDICAL PROGRESS.

Treatment of Aortic Aneurism.—The recently recommended gelatin-injection treatment is the subject of an article by N. Kalendern (*Klin. therap. Woch.*, Jan. 28, 1900). The first indication to be met in curing aneurism sacs is to eradicate as much as possible the cause. Syphilis being the most common etiological factor, an antiluëtic treatment would seem in place were it not for the fact that in the majority of cases the media is too much destroyed to admit of good results. By increasing the coagulability of the blood the sac may, however, be obliterated, and this is most efficiently accomplished by the use of gelatin. As an example, the case of a patient with aneurism of the transverse arch is cited, in which paralysis of the recurrent nerve was the prominent feature. Although of undoubted syphilitic origin the iodides aggravated the condition. Gelatin injections (1 gm. gelatin in 100 c.c. sodium chloride solution once a week) were then resorted to, with the remarkable results that after five weeks the patient was practically free from symptoms both subjective and objective.

Crurin in Ulcers.—Crurin (chinolin bismuth rhodonate) forms a coarse, yellowish-red powder of strong odor and insoluble in the usual media. It is disinfectant and furthermore forms a scab on ulcers and leads to active granulation and rapid healing. K. Steiner (*Therap. Monatshft.*, Jan., 1900) is well pleased with the results he has obtained in ulcers of the leg and finds that even in chronic cases with much induration, a healthy reaction is incited if moist applications of Burrow's solution are used for some time before applying crurin. It is generally best to use it pure unless the raw surface is extensive, when it may be diluted with starch. Following the application some smarting usually occurs, but this is of transient character. A cure is generally affected in from two to six weeks, and this method of treatment should be given a fair trial before surgical intervention.

Largin for the Eye.—Marczel Falta reports (*Wiener klin. Rundschau*, Jan. 21, 1900) on the newest of the silver preparations, namely largin. Heretofore, protargol possesed marked superiority over its fellows, both in the percentage of silver and in its general therapeutic properties. Largin, however, has superseded it inasmuch as it contains fully 11 per cent. of silver, whereas protargol has but 8 per cent. Not only in this re-

spect does largin merit consideration, but it also far exceeds protargol (Pezzoli) in its germicidal powers. Indeed, even the nitrate of silver suffers in comparison with this preparation. A solution of 1-4000 of largin will kill the gonococci of a pure culture in ten minutes, while neither silver nitrate 1-2000 nor protargol will accomplish this. Pezzoli has demonstrated that none of the other silver compounds has such a power of penetration as has largin. The power of the tissues to take up this drug is one of the chief reasons for its successful use, especially in cases of conjunctivitis and diseases of the lachrymal ducts. The eye can readily bear a solution of 10 per cent. strength although a slight inflammation, evidenced by reddening and a little pain, is caused thereby. Instillations of largin several times daily are recommended in severe conjunctival affections with large amounts of secretion. The secretion rapidly diminishes in amount and a return to the normal condition follows. In cases in which both protargol and largin have been used, the author prefers and recommends the latter. The only drawback is a slight inflammation following its use. This is caused by its alkalinity, which, instead of being baneful, is in reality of great use to the drug in its therapeutic application.

Ichthyol in Joint Affections.—Stimulated by the good results following the use of ichthyol in chronic rheumatism, G. Edlefsen (*Therap. Monatshft., Jan.*, 1900) was led to try a more recent preparation, ichthyolvasogen, in this and allied conditions. The great powers of penetration possessed by this compound have proven it of especial value in the chronic monoarticular arthritis following the acute lesion and even in the polyarthritic form, and in arthritis deformans it did not disappoint. Eight to ten drops should be used for the larger joints and two for the smaller ones; when well rubbed in the good effects of massage will be added to the curative action of the drug. In conditions where much tenderness exists, however, massage is contraindicated and the usual solution of ichthyol in alcohol and ether is to be preferred.

Imperforate Rectum.—W. P. Montgomery (*Lancet*, Feb. 3, 1900), having operated on ten cases of imperforated rectum, makes these observations: In no instance did crying cause the perineum to bulge. The cases were treated by doing left inguinal colotomy, but the cecum presented three times, the sigmoid once, and, in the remainder, the small intestine. In only two cases was there distention of the lower end of the large bowel. Peritoneal repair in these small children is very slow and inefficient and, therefore, especial care should be used in the suturing at the colotomy. In two of the cases the obstruction was at the cecum, which was twisted so as to form a volvulus. From the life-saving point of view the perineal route has marked limitations. In the majority of cases the gut cannot be found; such children cannot endure prolonged operation. The acute obst. uction is often at the cecum. The anus in the groin is more comfortable and easily cared for than the perineal one. The majority of children recovering from the perineal operation require constant attention to prevent stricture formation. If more than one half-inch separates the rectal pouch from the surface, a perineal anus causes constant trouble. In view of all these facts, routine colotomy is the best procedure for these patients.

Appendicitis.—J. O'Conor (*Lancet*, Feb. 3, 1900), after considerable experience with appendicitis, makes the radical statement that every case of appendicitis should be operated on as soon as diagnosticated, and gives the following reasons: No one can at the attack's onset predicate a spontaneous cure. Perforation without adhesions may suddenly occur in any case, and this complication is invariably fatal. Removal of the appendix is the most accurate method of diagnosis and cure, and the patient will never again have appendicitis. An appendix once infected is always infected and remains prone to a recurrent attack. When no actual recurrence takes place, the adhesions so frequently formed cause chronic digestive and various painful disturbances rendering life miserable. Once having entered the abdomen, never consider the operation finished until the appendix has been removed. When the abscess is simply drained, recurrent attacks are very frequent. To leave a moribund appendix in a living abdomen is not sound surgery.

Chronic Constipation in Infants.—It is an every-day observation that costiveness is more frequently seen in children brought up with artificial food than in those fed with mother's milk. H. Doerfler (*Münch. med. Woch.*, Jan. 23, 1900) ascribes this to the too great dilution in which cow's milk and other substitutes are given. A hyperemia is established in the gastro-intestinal mucosa by the fluid, which soon leads to increased absorption of water and polyuria. If this pathological condition persists it will eventually become chronic; the follicles will no longer be able to assimilate so thoroughly the solid constituents of the food, and constipation is inevitable. From the character of the feces it can be seen that the usual food is too dilute and contains too little fat and that the casein is not well digested. Hence it is advised to give cow's milk in smaller but more concentrated form, and also to add butter to the diet. This latter should be given separately and should be as fresh as possible. Children two to three months old should receive a teaspoonful morning and evening until relieved, then the same dose every second day. It is usually taken readily and not only is the indicatis morbi met, but the general health is much improved.

Plasmon as a Food.—Within the last years great efforts have been made to discover some proteid which could replace the albuminous principles of our food in disease. Such a compound

must be sufficiently cheap to make its use among the lower classes possible, and should be pleasant to take so that its continued use will not nauseate. C. Virchow (*Therap. Monatschft.*, Jan., 1900) thinks that in plasmon the ideal compound has been found. By experiments on himself the author has discovered that plasmon is perfectly digestible and, since almost all the nitrogen is used, concludes that it exceeds meat in nutritive value. It may be given as bread or in solution, but can probably be combined with many articles of food.

Iodoform in Tuberculosis.—Zera J. Lusk (*Medicine*, Feb., 1900) attributes the cure of three cases of tuberculous peritonitis to the application of an iodoform poultice from the ensiform cartilage to the pubes and on either side to the spinal column. The poultice consisted of one ounce of iodoform and six ounces of vaseline spread on cloth. He also applied such a poultice to the chest in a case of pulmonary tuberculosis, and to the knee in tuberculous synovitis. Rapid recovery took place in each instance.

Dilating Esophageal Strictures.—J. S. Pyle (*Phila. Med. Jour.*, Feb. 3, 1900) describes his apparatus for stricture dilatation. It consists of a No. 12 rubber tube having attached to its distal end a finger-shaped contrivance, consisting of external and internal tissue-rubber sacs, enclosing between them a fine silk sac to give strength. An olive-pointed piano wire guide is inserted, and the apparatus passed into the esophagus until the guide has carried the dilatable sacs partly beyond the stricture. Warm water is now forced in gradually and the stricture dilated as the sacs expand. The sacs may be in graded sizes. The operation causes little discomfort, an anesthetic is not necessary, the patient is not confined to bed, one has a perfectly controllable, evenly exerted, dilating force, and the risks involved in Abbé's operation, which necessitates gastrostomy, are avoided.

Prostitution and Venereal Disease.—Prostitution is the indiscriminate abuse or use of the sexual instinct outside of the marital relation and must apply in its broadest definition to woman and man alike. Isadore Dyer (*Phila. Med. Jour.*, Feb. 10, 1900) does not think the world manages the question of prostitution entirely right. He does not believe in restriction, as it usually makes the probability of disease greater. The tendency of womankind, in this country, to assume a place in all ranks of livelihood and life, side by side with men, is, the writer thinks, doing much to free the next generation of women from the control of man. This is being done by education, whereby all classes, ages, and men are acquiring a healthy knowledge of sexual obligations and of the conditions which are conducive to sexual abuse, and which create the morbid instinct. The strongest factor in the reform of women must be her emancipation through her raising the intellectual standard of her sex. The writer believes that prostitution can be checked and venereal diseases abated (1) by education of children before and as they become sexually mature, by teaching them physiologic, especially sexual, laws; (2) by creating a spirit of tolerance, rather than of abhorrence of fallen women in the minds of men and women, and by opening unadvertised homes where they may find opportunities of education in interesting lines and wholesome occupations; (3) by recognizing the fact that a prostitute, or sexual pervert, is a victim of civilization, and not a criminal. Various means have been taken by different countries to restrict venereal diseases, but they are not very successful. Dyer believes that all cases of gonorrhea and its acute complication, in public patients, should be confined in hospitals, and also all cases of syphilis as far as possible, during the eruptive stage or any acute manifestations of the disease. He thinks that legal restrictions should be made whereby those afflicted with syphilis and gonorrhea may be prevented from infecting others. Such a law would be difficult to enforce, but the educational effect would be good

Mixed Typhoid and Malaria.—Although the cases in which typhoid and malarial fevers simultaneously occur are frequently reported, a positive diagnosis can seldom be made and the combination of the two is probably extremely rare. The case of a soldier in the recent war in Cuba is reported by J. L. Bevans (*N. Y. Med. Jour.*, Feb. 10, 1900). A characteristic course of typhoid was run for eleven days, when quotidian chills developed and the malarial organisms were found for the first time, although previous examinations of the blood had been made. The administration of quinine stopped the chills and two days later malarial organisms could not be found. The temperature curve and symptoms of typhoid then persisted for twelve days. The Widal test proved negative each time until after the malarial attack had ceased and then a slight clumping appeared, followed in a few days by a positive Widal reaction.

Bradycardia.—Bradycardia is the name given to those cases of slow pulse—below 60—which are synchronous with the heart's systole. Richard F. Chase (*Boston Med. and Surg. Jour.*, Feb. 8, 1900) reports a case in detail and presents a table of 35 cases collected by himself under the heading of idiopathic bradycardia. This condition in his opinion is of common occurrence. Men are affected more often than women. The average age at which it occurs is about sixty. He does not agree with the classification of this disease by Riegel into physiological and pathological bradycardia, nor with any other previous classifications, but divides the cases into (1) physiological bradycardia, those cases due to physiological conditions only; (2) idiopathic bradycardia, which consists of those cases occurring in advanced life without discoverable cause; and (3) symptomatic bradycardia, to which class belong those cases in which the slow pulse is a

symptom of some usually known condition. The bradycardial symptoms consist of attacks of syncope, vertigo, dyspnea, and sensitiveness to cold. The outcome of the idiopathic cases is usually fatal. The immediate cause of bradycardia may be due to (*a*) a condition of the nerve centers producing irritation of the pneumogastric or paralysis of the sympathetic (accelerator) nerves of the heart; (*b*) a condition of the pneumogastric which increases its irritability; (*c*) a condition of the sympathetic nerves paralyzing them; or (*d*) to some condition of the cardiac ganglia in which the influence of the pneumogastric preponderates; or (*e*) to a condition of the heart muscle whereby it fails to respond to normal stimulus; or (*f*) to poisons acting on the nerve centers or endings. Not much is known of the physiology or pathology of bradycardia. In 31 autopsies, however, the following lesions were found: Disease of the brain in 6; disease or injury of cord in 8; disease of heart in 10; disease of circulatory system in 5; and no lesion in 2. The treatment should consist of the removal of the cause when it is known, and in other cases it must be symptomatic although the majority of cases show little benefit from treatment.

Albuminuria.—Formerly albumin in the urine was thought to mean Bright's disease, but it is now commonly accepted that there may be albuminuria without Bright's disease, and that the occurrence of a particular proteid in the urine carries with it a significance peculiar to itself. Thos. P. Prout (*Phila. Med. Jour.*, Feb. 10, 1900) says that no less than five proteids are found in the urine, *viz.*, (1) serumalbumin; (2) serumglobulin; (3) nucleo-albumin, or mucin; (4) peptone; (5) albumose, or propeptone. He describes these proteids and says that the first two are of special importance because of their association with nephritis. Mucin is usually present normally in small amount in the urine. Peptone and albumose should never appear in normal urine. Serumalbumin in the urine may be due to (1) renal disease, or (2) to the pressure of pus, spermatozoa, blood, or elements of tumors. Urine containing these substances will give the albumin reaction. Renal albuminuria may be divided etiologically into (1) that following certain febrile diseases; (2) nervous albuminuria, following some diseases of the central nervous system; (3) hematogenetic albuminuria; (4) toxic albuminuria; (5) albuminuria of pregnancy; (6) congestive albuminuria; (7) albuminuria due to long-continued exposure. In these conditions the amount of albumin in the urine varies according to the cause. In some there will be no albumin, or at least a mere trace, and in others it may be present in the urine at one time and absent at another. The appearance of pepton in the urine is pathologic and is of interest in certain conditions. Being an element of pus it is expected in the urine in cases of empyema, or other extensive pus-formations. The writer looks for it in (1) the ulcerative stage of typhoid fever; (2) suppurative processes; (3) pneumonia, at the crisis; (4) after childbirth; (5) in carcinomatous affections, and (6) in phosphorus poisoning. The absence of pepton from the urine does not necessarily indicate that suppurative lesion is absent, but its presence is of considerable corroborative value. Albumose is not of much importance as yet. Mucin is increased in quantity in the urine in urethritis and cystitis and is, therefore, of some diagnostic value. Prout describes six tests for finding albumin, mucin, albumose, and pepton.

Inguinal Hernia in the Young.—J. W. Seaver (*Yale Med. Jour.*, Feb., 1900) publishes a non-operative treatment of hernia in young people. It is best adapted to herniæ of moderate size and duration. After the hernia is controlled by a suitable truss, the patient twice a day goes through exercises planned to develop the muscles in the abdominal region, as well as those which deepen the chest, and thus make more room in the abdominal cavity. The exercises are gradually made more severe and complex. Under this treatment there is a natural tendency to the closure of the abnormal aperture. Local massage of the ring region starts up a cell activity that markedly strengthens the tissues. Under this treatment seventy per cent. of the cases have been freed from the necessity of wearing a support to control the hernia.

Nervous Dyspepsia.—Boardman Reed (*Internat. Med. Mag.*, Jan., 1900) considers this to be a local condition of the same type as general neurasthenia. The term should be applied only to those gastric symptoms which cannot be traced to any organic lesion or to any well-known disorder of function. Any stomach disease may be mimicked, but in nervous dyspepsia the discomfort is, as a rule, limited to the digestive period, the patient feeling well while the stomach is empty. The dyspeptic symptoms have no definite relation to the kind of food ingested, but come on as readily after a simple meal as after an elaborate dinner. Among the intestinal symptoms are constipation, diarrhea, membranous colitis, gaseous distention, and especially certain tender areas over the colon. The diagnosis is based on the exclusion of organic disease, with variability in the test-meal washings and the absence from them of excessive mucus. A depressed nervous condition must not mislead, as this often accompanies other gastric troubles. The treatment consists of rest, seclusion, overfeeding, gentle massage of abdomen, and electricity, for from four to eight weeks; then healthy out-door exercise and diversion, with plenty of nutritive and tempting food. As a tonic sodium glycerophosphate with strychnine should be given; and if the gastric juice is deficient add hydrochloric acid and pepsin, or papain. Keep the bowels open by exercise and massage, aided, if necessary, by cascara or aloes, or, if the tendency is to hyperacidity, by calcined magnesia or sodium sulphate.

Serotherapy in Tuberculosis.—The use of serum

from an immunized animal (usually the horse) in the treatment of tuberculosis was begun with a great deal of hope and expectation a few years ago, but soon fell into disuse, owing to the unfavorable results so often reported and, especially, on account of the danger of lighting up new processes where the germ had probably become inactive. P. Paguin (*N. Y. Med. Jour.*, Feb. 10, 1900) has, however, persisted in this method of treatment and claims for it remarkable results. He gives a report of twenty-nine cases of undoubted tuberculosis of the lungs, throat, bones, joints, kidneys and testicles, many of them having been pronounced hopeless, which, after being subjected to serotherapy, entirely recovered and have remained well from three to four years. He advises, however, combining many of the usual symptomatic methods of treatment and climatic influences, where possible, with the use of the antitoxin serum.

Phototherapy.—The effects of light on the skin are twofold: It kills any bacteria present and sets up an erythema due to the ultraviolet rays of the spectrum. V. Bie (*Therap. Monatshft.*, Jan., 1900) divides phototherapy into negative and positive. In the former the ultraviolet rays are prevented from reaching a skin which is already the seat of a dermatitis, while in the latter these same rays alone are used for their parasiticidal action in the various disease of the integument. Negative phototherapy has been found to be valuable in smallpox. If only red light be allowed to fall upon the skin of patients suffering from variola, many of the pocks will not go on to suppuration and, consequently, the constitutional symptoms will be less severe, the fever of suppuration mild or absent, and the subsequent scarring not deep. In measles, also, the symptoms will be mitigated, and it is probable that in many other exanthemata the results will be no less brilliant. In applying positive phototherapy, the ultraviolet rays, which may be obtained from sunlight or an electric lamp, should reach the skin after having been concentrated by a special lens. The best results have been obtained with the skin in an ischemic condition. The indications in general are that the disease be superficial, local, and of bacteritic or fungous origin. As far as results are concerned, lupus vulgaris, no doubt heads the list. The treatment here is not painful, the recurrences rare, and the cosmetic effects excellent. Lupus erythematosus is less amenable to treatment, but alopecia areata generally yields.

Gastro-intestinal Infections in Infants.—According to I. A. Abt (*Medicine*, Feb., 1900), a simple form of indigestion in breast-fed children is caused by some alteration in the mother's milk, such alteration being due to the occurrence of menstruation during lactation, to acute illness, or to emotional excitment. If the mother's milk is rich in proteid, the child may suffer after each feeding from flatulence, colic, and diarrhea. Such simple dyspepsias are often the predisposing condition leading to gastro-intestinal infection. The undigested and fermenting food material furnishes a pabulum which favors the growth and development of the micro-organisms introduced with the food, or already present in the alimentary tract. Bacteria not pathogenic may under abnormal conditions so increase in number and activity as to cause irritation either of themselves or by their products. Thus the intestinal wall becomes injured, the micro-organisms gain access to the blood and lymph channels, and constitutional symptoms supervene. These latter may also be due to the absorption of the products of decomposition of albuminoid material. In all cases of severe intestinal disorder there is great increase in the number of intestinal bacteria, and it is possible that in most instances these are merely diplococcoid or other modified forms of the bacillus coli communis.

Infectivity of Malignant Growths.—G. B. Smith and J. W. Washbourn (*Edinburgh Med. Jour.*, Jan., 1900) consider heredity, nervous influences, trained, etc., of importance as predisposing factors in the growth of neoplasms, but unsatisfactory in explaining the phenomena of malignancy. Cohnheim's embryonal theory explains certain tumors, enchondromata of bone, dermoid cysts, etc., but again fails to explain malignancy. Chronic inflammation and irritations are important factors in the etiology of neoplasms, and the lines of distinction between inflammatory hyperplasias and neoplasms are not clearly defined. The factor of malignancy is still unexplained. Instead of non-specific irritants, may there not be some definite specific cause of the disease, which by its continued stimulus will account for the progressive growth, locally and in distant parts? There are certain positive evidences, clinical and experimental, of the infectivity of growths; many cases of inoculation have occurred in man, either from contact of a healthy with a cancerous surface, or as a result of operative interference. The possibility of reinfection during operation is so great that malignant cases must be dealt with exactly as if they were infective. Transfer from one to another part of the same individual is possible. With reference to infection from one individual to another, cases present themselves from time to time that are hard to explain by any other assumption. Guelliot collected seventy-seven cases in which there was strong reason to suppose that one person had been infected from another and in seventy-one of these the two affected were husband and wife. Still more remarkable are the localized cancerous outbreaks investigated in England and some of the continental countries, series of cases occurring in the course of a few years in a house or neighborhood. Locality is a distinct factor in the prevalence of cancer. Shallow, low-lying vales, liable to floods and composed of clays, seem to favor the development of cancer. Whether this is due to depressing of the bodily functions, or as aiding the development

of an efficient cause is not known. Experimentally, inoculations from one to another animal of the same species have been very successful. Transference between different species is difficult, yet a few authentic cases are recorded. In many cases the inoculated neoplasm developed for a time and then underwent retrograde changes and disappeared. For a certain length of time thereafter the animal was immune to further inoculation. In certain other cases the inoculated material showed all the signs of malignancy. In the cells of neoplasms, especially in carcinoma, bodies not present in other lesions are found having the characteristics of micro-organisms of the lower animal or vegetable kingdom, but evidence is still lacking to connect them definitely with the causation of these tumors.

Perforated Gastric Ulcer.—M. Richardson (*Phila. Med. Jour.*, Feb. 3, 1900) says the most constant and important symptom of perforated gastrict ulcer is agonizing epigastric pain, radiating in various directions. Without shock or other sign of peritoneal disturbance, however, this pain has little significance. Accompanied by shock and tenderness the pain strongly indicates gastric perforation, although it may be due to acute pancreatitis, acute cholecystitis, rupture of hepatic abscess, perforation of duodenum or transverse colon, etc. Without pain, acute epigastric symptoms cannot be caused by a perforated ulcer. Within a short time the symptoms of septic peritonitis present themselves. Immediately the diagnosis is reasonably certain, surgical intervention is imperative. A generous median incision gives the most satisfactory view of the abdomen.

If gas is in the peritoneal cavity, one looks for perforation, first, of the stomach, then of the tranverse colon, and, finally, of the duodenum. Having found the perforation, one must decide as to the further technic and nothing requires greater balance of surgical judgment than to select for each case of perforated ulcer the method which will give the greatest safety as to life, and at the same time the speediest recovery possible under the circumstances. Very few cases are in good enough condition to permit of excision of the ulcer and neighboring diseased tissue followed by suture. Direct closure by inverting the edges of the ulcer is simplest and safest. A series of Lembert sutures with a good bite are inserted and then tied while the stomach wall is inverted. They are less apt to tear out than if they are tied one by one, as inserted. A second reinforcing series is then used. When the wall is so infiltrated as to prevent inversion and suture, one must simply provide drainage, and wall off the general peritoneum with gauze. In one case a tight-fitting soft drainage tube was passed through the ulcer into the stomach and provided for drainage, for lavage and gavage. In other cases gauze drains may be passed down to the perforation. The infected peritoneum should be carefully cleaned, and the general cavity protected by gauze and drained when necessary. When the ulcer is inverted and sutures placed, a gauze drain should be carried to the suture line to provide for leakage or tearing out of the sutures. For forty-eight hours feeding must be by rectum, and then small quantities of liquid by mouth may be given. Gastric fistula sometimes occurs, but usually heals spontaneously.

Sexual Function; Insanity and Crime.—There is no more vexed question than this of the relationship that affections of the generative organs in women bear to insanity and to crime. H. MacNaughton-Jones (*Med. Press and Circular*, Jan. 31, 1900) concludes an extended series of observations bearing on this question, as follows: (1) The correlation of insanity and disordered sexual functions arising out of affections of the generative organs is a factor to be taken into serious consideration in the treatment of women mentally afflicted. (2) That where there is ground for the suspicion that some physical condition of the uterus or adnexa exists a careful examination should be made. (3) That in the investigation of criminal acts committed by women, either during the menopause or while the menstrual function is either active or suppressed, due weight should be given to the influence exerted by its irregularity or abeyance on the mind of the woman. (4) That the special dangers of the climacteric period and the symptoms indicative of threatening climacteric mania must be recollected. The principal of these are moroseness and depression of spirits, attacks of hysteria, occasional hallucinations of sight and hearing (especially of smell), suspicions with regard to relations, unjust dislikes, unfounded apprehensions of some great crime committed or injury inflicted on them, suicidal tendencies. (5) That in operations on the female generative organs there is a greater predisposition to mental disturbances than after other operative procedures, but the post-operative insanity is generally of a temporary nature. (6) That women who have been previously insane are predisposed to a relapse by the development of disease in their sexual organs, and especially to such temporary recurrence of insanity after operation on these organs. (7) In order to anticipate suicidal impulse and the commission of crime, the disordered mental symptoms exhibited at the menstrual epochs and at the climacteric should be carefully noted, and if the discharge or the cessation of the sexual function be attended by evidence of disease in the sexual organs, an examination of these should be made, and, if gross lesions be detected, operation should be resorted to.

For Obstinate Constipation.—

℞ Ol. tigli .....gtt. i
Pulv. rad. altheæ .....q.s.
Mucil. acaciæ .....q.s.

M. Ft. boli No. iv. Sig. One bolus every 1-2 hours until bowels act.—*Bonchardat.*

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SATURDAY, FEBRUARY 17, 1900.

POSSIBILITIES OF CURE IN DIABETES.

THE modern treatment of diabetes mellitus is encouraging. Instead of the simple absolute withdrawal of all sugar-containing articles from the dietary, there is the rational selection of a food program to which it is possible to persuade a patient to submit without the insistence so necessary under the old régime. Careful study of the amount of glycosuria under a diet containing definite amounts of carbohydrates shows just to what degree the patient's faculty for the absorption of sugar is disturbed. Slightly less than the amount of starchy foods that can be utilized by the system is then allowed. From time to time several days to a week of absolute abstention from all substances containing sugar is insisted on. For several days twice a year a rather liberal diet of carbohydrates is allowed and the systemic metabolism, as far as it regards sugar, carefully estimated once more. Where the dietary regulations have been carefully followed it will often be found distinctly improved in the interval, the system having become able in the meantime to dispose effectively of more sugar than before the treatment was begun.

Where improvement is noted patients are very much encouraged to go on with the careful observation of the regulations. Before the possibility of the restoration of the metabolic faculty for sugar was realized, a lifetime of almost hopeless self-denial seemed the price of health. Now there is a definite term and an encouraging progress, the steps of which can be demonstrated. Any one who knows how liable diabetic patients are to be disheartened at the constant sacrifices required by their ailment, will appreciate the importance of this new aspect of the therapeutics of the disease. The mental state, as is well known, always has great influence on the course of a diabetes. To substitute, then, for the sense of hopelessness so apt to be engendered by constant denial a reasonable prospect of improvement and eventual cure is of itself a most important element in the successful therapy of the disease. The hope inspired in patients that they will ultimately regain their faculty for the metabolism of sugar is not merely illusory, nor is its justification to be found only in its suggestive influence. Such careful clinicians and thorough specialists on the subject as Von Noorden and Naunyn have reported not a few cases in which patients regained their normal metabolic relation to sugar.

The secret of many of these cures, besides the careful regulation of the amount of starches and sugars consumed, lies in the judicious use of the fats. In modern life there has been a departure from old habits in the use of fats in the diet and a substitution of the starchy carbohydrates that is the source of a good many inconveniences. A certain distaste for fats is acquired by many people and an important article of food neglected. Diabetics must be first of all taught to use fats in abundance. They are the only substances that can succeed in stilling the craving for the starches and sugars and can properly replace them. As the result of the insistence on this important principle and the thoroughly rational treatment of the question of limitation, not negation, of starchy foods, a very promising vista is opening up in a field of therapeutics that has been up to the present time a source of a good deal of dissatisfaction to patient and physician.

WAR-TAXES ON BEQUESTS.

A PETITION is about to be presented to Congress asking for an amendment to the war-tax bill of 1898, remitting the present exorbitant tax upon bequests to educational, charitable and religious institutions. According to the terms of

the law as now in force one-tenth of all such bequests go to the general government. The country is certainly not in a condition to take tithes with any propriety from moneys voluntarily donated to endow or found universities, seminaries or hospitals.

The finances of the Government for the last year, far from showing a deficit, exhibited a handsome surplus. At the present time there is talk of remitting some of the minor forms of tax, as those on express receipts and telegrams. Surely it would contribute more to the commonweal to retain these taxes for the present, if necessary, and give the bequests destined for public charities in all their entirety to the legatees. There is some danger that the much talked of wealth of many of the educational and charitable institutions that are petitioners in this matter may give color to the idea that such a remission of taxes is not demanded by the circumstances. Medical men as a body best appreciate of how much public utility these educational and charitable institutions really are. It devolves on the members of the medical profession, therefore, to bring to bear upon legislators whatever influence they may have in so good a cause. As long as the present generation is ready and willing to assume its own burdens the discounting of the heritage of posterity is absolutely unwarranted.

DIAGNOSTIC VALUE OF "KOPLIK'S SPOTS."

WE presented to our readers last June the first colored reproductions that had ever been published of this important diagnostic sign. The review of the recent literature of the subject and the discussion at the last meeting of the Section on Pediatrics of the Academy of Medicine (see p. 239) show that the new symptom is attracting the attention it deserves. Although the spots were noticed many years before Koplik described them it is to his efforts that the present widespread interest in them is due and it is he who first made the claim that they are pathognomonic of measles; that they occur usually several days before any other typical symptom of the disease and are, therefore, of the greatest value in its early diagnosis. Moreover, Koplik's publications have aroused interest in the possibility, by the early recognition of these spots, of lessening the spread of measles by the immediate segregation of the children upon whom they are discovered, though they may have no other manifest symptom of the disease.

That these bluish-yellow spots with red areolæ on the mucous membrane of the cheek possess the diagnostic importance that is claimed is no longer open to question. At most of the children's clinics here in New York City, and at many throughout the country, this sign is constantly looked for and is confidently considered as pathognomonic. From many important children's clinics in Europe, notably at Berlin, Vienna, Prague and Heidelberg, confirmatory reports of the diagnostic value of the spots are published. At Prague the spots on the inside of the cheek have been seen as long as six days previous to the cutaneous eruption of the measles. They have never been seen in any other disease. Especially are they of value in making it possible to recognize measles when, owing to the circumstances of the case, scarlet fever may be suspected.

In this country the idea has been growing more and more prevalent of late years that German measles and ordinary measles are frequently confounded. We called attention not long ago to the fact that Professor Gerhardt of Berlin found among his students 15 per cent. of second attacks. Some claim that one of the two presumed attacks of measles is really an anomalous case of German measles. This is an important practical question since on it depends the freedom with which children who have presumably had one attack of measles may be exposed to the contagion again. The only feasible way to decide the question is to note carefully the occurrence of Koplik's spots. They have never been seen in German measles..

The *Baltimore Medical Journal* (February, 1900) has done some most commendable work in reproducing the colored plates originally presented in our issue of June 3, 1899, and publishing the replies of twenty prominent pediatrists of whom it had asked the personal estimate of Koplik's spots. The editor gives the following summary of these replies:

Of the 20 observers, 6 characterize the sign by the word "pathognomonic:" Hirsh, Libman, Lichtenstein, Ross, Sobel, Zahorsky.

The sign is diagnostic when present, according to 17 observers: Adriance, Blackader, Blanton, Cheney, de Saussure, Gilbert, Hirsh, Libman, Lichtenstein, Mitchell, Morse, Ross, Sobel, Taylor, West, Zabriskie, Zahorsky.

These three doubt its diagnostic value: Adams, Cameron, Cotton.

Absence of the spots excludes measles, according to 7 observers: Hirsh, Libman, Lichtenstein, Ross, Sobel, West, Zabriskie.

Absence of the sign does not exclude measles, 5 observers: Adams, Cameron, Cheney, Morse, Zahorsky.

The sign has been observed in advance of the eruption by 13: Adriance (20 cases out of 96), Blackader (in every case), Cheney ("frequently"), Gilbert, Hirsh, Libman, Lichtenstein (as early as 3 days before the eruption), Morse, Mitchell (48 hours before the eruption), Ross, Sobel (from a few hours to 5 days before the eruption), West, Zabriskie, Zahorsky.

ECHOES AND NEWS.

NEW YORK.

The State Hospitals.—A bill passed the Assembly February 9th appropriating $406,291 to reimburse the Maintenance of Salaries and Wages-Fund of the State hospitals and to purchase additional lands.

New York Hospital.—A poor woman was recently knocked down on Fifteenth street by a New York Hospital ambulance and killed. The children of the woman have begun suit against the hospital for damages.

Dr. Hammond.—The Neurological Society has passed resolutions appreciative of the estimate its members place upon the work of the late Dr. William H. Hammond and the services he rendered to neurology and psychiatry.

The Late Dr. Ketch.—At a recent stated meeting of the Medical Board of the Montefiore Home resolutions were passed expressive of the loss sustained by the Board in the death of Dr. Samuel Ketch and of the respect and esteem in which he was held.

Quarantine and Public Health.—The contest of authority between the State Quarantine and the City Board of Health, which occurred recently in reference to the coffee ships arriving from Brazil, has given rise to a bill which has been introduced into the Legislature designed to prevent such situations in the future.

Hospital for Deformed Children.—A bill was introduced in the Assembly at Albany on February 8th which provides for the establishment in or near New York City of a State hospital for the care of crippled and deformed children. Five managers, one of whom shall be a surgeon of experience in orthopedics, are to be in control.

American Red Cross Recruits.—A hospital corps composed of skilful physicians, nurses, and other attaches, has been organized in the United States for service in South Africa. The equipment, uniforms, tents, surgical instruments, and forty tons of medical supplies, have been secured. The expedition sailed from New York February 15th for the South African Republic.

Contagious Diseases.—For the week ending February 10, 1900: Measles, 859 cases and 39 deaths; diphtheria, 286 cases and 55 deaths; laryngeal diphtheria (croup), 23 cases and 12 deaths; scarlet fever, 257 cases and 23 deaths; chicken-pox, 36 cases; tuberculosis, 186 cases and 175 deaths; typhoid fever, 14 cases and 10 deaths; cerebrospinal meningitis, 5 deaths.

Animal Tuberculosis.—The Ways and Means Committee of the Assembly have reported favorably a bill providing for the inspection, by the State Commissioner of Agriculture, of stables where cattle and sheep are kept, and for the establishment of a code of sanitary rules. To him is also given the power to condemn and destroy animals afflicted with tuberculosis or other dangerous disease.

Collusion with Undertaker.—John W. Keller, Commissioner of Charities, suspended the night watchman at Bellevue Hospital and the driver of a Harlem Hospital ambulance on the specific charge that they were being paid by undertakers for tips on deaths that occurred. This information enabled undertakers to get the work of burying the body. One undertaker is reported as stating that the Bellevue trade alone was worth $50,000.

Flushing Hospital.—It may be necessary to close the doors of the Flushing Hospital. Under the present rate of payment made to the hospitals for public patients by the city the institution finds itself running heavily into debt. The city allows only 80 cents a day for surgical cases and 60 cents for medical cases. During January last the income from the city was $200, while the expense of maintaining the hospital was nearly $1000. The hospital has no fund to draw upon in case of a deficit.

Broken Neck Mended.—Some time ago we gave an account of a man, a hod-carrier, who fell from a building last October and broke his neck. He was first treated at his house by a physician, but was left with his right side paralyzed. In the early part of December he hobbled to St. Joseph's Hospital at Yonkers; a skiagraph showed that a cervical vertebra was fractured and pressure was being made upon the spinal cord. The treatment by extension was successful and the patient was discharged cured February 6th. He intends to resume his work as hod-carrier.

Obituary.—Dr. Abbie Hamlin MacIvor, wife of General James P. MacIvor, died February 8th, at her residence, 716 East 138th street. She graduated as a physician in 1886, and subsequently became an examiner in lunacy, medical examiner of teachers for the Board of Education, and a member of the County and State Medical Associations. In 1895 she was appointed a school inspector and in 1897 was elected chairman of the Board of School Trustees of the 23rd Ward. Besides her husband, she leaves a son, Dr. James Hamlin MacIvor, who practises in this city, and a daugher.

The Woman's Hospital.—The Forty-fourth annual report of the Woman's Hospital for the year ending September 30, 1899, has just been distributed. From this we learn that there were treated in the hospital during the year 865 patients. One hun-

dred and ninety-nine patients were subjected to abdominal section, of whom 189 recovered and 10 died, a mortality of 5 per cent. Among the causes of death we find 6 of them assigned to shock. It would be interesting to know if the surgeons regard shock as the result of hemorrhage. The record of abdominal work is certainly a great improvement over former years.

Medicine in New York in 1800.—Dr. Sydney H. Carney, Jr., in a paper which he read at the last meeting of the New York Historical Society, stated that in 1800 there were ninety-four physicians in New York City. They "all used that staff of medical propriety, a gold-headed cane. Small clothes were rapidly disappearing and pantaloons were covering a multitude of shins." There were in 1800 five medical schools in the United States, *viz.*, at Columbia College, at Philadelphia, Cambridge, Dartmouth and Lexington, Ky. In 1798 sixteen doctors lost their lives in trying to mitigate the sufferings caused by the plague. The pay of doctors at Bellevue was then twenty shillings a day. This hospital was three miles out of town. For a visit the fee charged was $1, for a visit and a dose, $1.25. Pills were 12 cents. Doctors got $1 a mile for going out of town. It cost $3 to get one to Brooklyn and $10 to have one visit Staten Island. For bleeding a charge of from $1 to $5 was made.

The Insane in the State Asylums.—The annual report of the New York State Commission in Lunacy shows a decrease in the per capita cost of maintaining the insane during the last year, the rate falling from $185 per annum in 1898 to $178 in 1899. The net annual increase of cases was only 529, the smallest in five years. The total number of insane in the State institutions at the close of the year was 21,374. The total amount expended for maintenance was $3,875,323, and for new buildings and equipments and for extraordinary repairs $1,127,501. The total number of patients discharged recovered during the year was 1009, and 931 additional patients were discharged sufficiently improved to enable them to return to their friends. During the year the Commission succeeded in returning to other States and countries 168 insane persons who had either been shipped to the port of New York from foreign countries or had drifted within the borders of the State from Canada or surrounding States.

PHILADELPHIA.

Health Report.—Deaths in the city for the week ending February 10th were 531, an increase of 24 over last week and a decrease of 38 from the corresponding week of last year. Contagious diseases: Diphtheria, 126 cases, 23 deaths; scarlet fever, 94 cases; 7 deaths; typhoid fever, 56 cases, 6 deaths.

Examination Frauds.—The State Medical Board has completed its investigation of the alleged fraudulent obtaining of questions by recent candidates for license and a report will soon be made. Something of a sensation is looked for, although rumors as to the extent of the affair have been greatly exaggerated. The questions for further examinations by the Board will not be printed, thus diminishing the chances for leakage.

Physicians Inspect Colleges.—A number of physicians connected with the schools of medicine in New York, Boston, Chicago, and Baltimore, visited the city last week. In the party was President William R. Harper of the University of Chicago. The various medical colleges were inspected as to their facilities, methods of instruction, etc. During their stay Dr. H. A. Hare entertained the members of the party at luncheon.

Experimental Filter Plant.—Designs are under way for the experimental filter plant which is to precede the establishment of a general filtration of the city water supply. Officials have inspected plants at Lawrence, Mass., and Albany, N. Y., prior to drawing plans. Chemical tests will be made to determine the kind of sand best fitted to meet the conditions found in the waters of the Schuylkill and Delaware Rivers.

Laloo.—This Indian freak, who has a partially developed twin attached to his chest, is now in the city and rumor has it that he will undergo a surgical operation in the near future for the removal of the appendage. The subject is causing considerable interest in medical circles, as the case would be a unique one. There is a strong suspicion, however, that the report is a perennial advertising scheme. As the freak is genuine and well worth seeing the truth of this will not be so disappointing to the public as to the surgeons, who wish to study the case.

Baggage Disinfected.—The baggage of 238 steerage passengers of the "Switzerland," which arrived from Antwerp February 10th, was seized at the Reedy Island quarantine station and will be held until it is fumigated. This action was due to the fact that the captain was unable to produce a consular certificate that fumigation of the baggage had been carried out before the ship sailed. Although all the passengers were in good health in this instance, the quarantine officials are using every precaution to prevent disease-carrying ships gaining access to this port.

Jefferson College.—The trustees of this institution are preparing plans for the erection of a new hospital on the site of the old college building. The new structure will be 107 by 276 feet in size and will correspond architecturally with the splendid college building erected last year. The feasibility of providing double facilities for the instruction of class sections by having two clinics running simultaneously in each department is being considered. The completion of the new hospital will enable Jefferson to utilize to much better advantage the vast amount of clinical material which it possesses.

Movable Kidney.—Dr. John B. Deaver believes in but one operation for anchoring the kidney,

i.e., the use of gauze without sutures. He has seen abscess of the kidney follow suturing of that organ, although clean surgery was done. Senn's method, with one or two modifications, is used. For scarifying the kidney a scalpel, instead of a needle, is used. The wound is repacked two or three times, this covering a period of about three weeks. The first packing is removed at the end of a week or ten days. The secondary packings are not inserted so deeply as the original one at the time of operation.

Pennsylvania Hospital Clinic.—Dr. J. M. Da Costa, while discussing uremia recently, called attention to the fact that urea may become locked up in the system and prevent recovery after a normal amount of urea is being excreted by the kidney. An interesting case, seen in consultation, was cited. Some time after a typical attack of uremia the amount of urea excreted by the patient went up to normal yet the patient did not get well, the stupor and curious delirium of uremia continuing. After some days the urine suddenly rose to 70 ounces per day and at the same time 1200 grains of urea were excreted. From that time the recovery of the patient was rapid.

Municipal Hospital.—Largely through the efforts of the Philadelphia County Medical Society this hospital is now accessible to the junior students of the various medical colleges of the city. Bedside demonstrations of contagious diseases, including scarlet fever, diphtheria, smallpox, leprosy, etc., are given to small sections by the chief physician, Dr. William Welch. Aseptic caps and gowns are worn by the students and every precaution taken to prevent infection and the dissemination of contagion. This new departure adds materially to the facilities of the city for medical teaching and students of medicine and the public are alike to be congratulated because of this action of the authorities.

CHICAGO.

Chicago Neurological Society.—At the annual meeting recently held, Dr. Henry M. Lyman was elected president, Dr. Hugh T. Patrick, vice-president, and Dr. Charles H. Lodor, secretary.

South Chicago Hospital.—A movement has been started to raise funds for the erection of a hospital at Calumet Heights. There is need of such an institution in that district.

Medical Societies' Joint Meeting.—At a joint meeting of the Chicago Society of Internal Medicine and the Chicago Medical Society, held January 31st, the subject of typhoid fever was discussed from various aspects.

Medical Examiners' Association.—The annual meeting was held January 30, 1900. The following officers were elected for the current year: President, Dr. Denslow Lewis; vice-president, Dr. W. K. Harrison; secretary, Dr. George F. Butler, and treasurer, Dr. J. Homer Coulter.

Ordinance for Examining Automobile Operators.—Health Commissioner Reynolds will require that operators of automobiles shall have good sight, sound hearing, and a sufficiently stable nervous system to enable them to exercise common sense under excitement, or in case of emergency.

Hospital for Consumptives.—The citizens, committee, having in charge the erection of a hospital for the treatment of consumptives, has received nearly $15,000 toward its erection. The committee is working for a fund of at least $25,000. The hospital will be constructed to care for three hundred patients.

St. Luke's Hospital.—February 16th an entertainment will be given at the Fine Arts Building for the benefit of this hospital. It is said, that, owing to its present limited income, this institution, to avoid a deficit, has been obliged for the last year or so to keep nearly sixty of its one hundred and seventy beds empty.

Passavant Memorial Hospital.—The proceeds of a recent entertainment given at the residence of Mrs. Potter Palmer were given to this hospital. This well-known charitable institution was founded prior to the great Chicago fire of 1871 through the earnest and tireless efforts of the late Rev. W. A. Passavant. At first its equipment was primitive, and its capacity limited to fifteen beds.

Relief Corps for Boer Army.—An ambulance corps under the direction of the American Red Cross Society left Chicago February 11th for South Africa to succor the wounded Boers. The expedition will be under the medical direction of Dr. John R. McNamara. The Chicago doctors who will go on this mission are Drs. T. M. Aderhold, A. F. Conroy, J. J. Slattery, Hubert H. McAuley, and Ross D. Long.

Vital Statistics.—There were 504 deaths during the week ended February 3rd, 22 less than for the corresponding week of 1899, but 18 more than for the week ended January 27th. Of the 504 deaths pneumonia was responsible for 113. For no week this winter has so great a number of deaths been reported from pneumonia, but the total is considerably below the "high week" of 1899. The medical school inspectors found it necessary to exclude from school only 291 pupils last week, as compared with 452 for the previous week. One of the inspectors sent home a marked case of chicken-pox, the patient being the son of a well-known physician.

Complications of Typhoid.—Dr. George W. Webster says that the most important complications in connection with the circulatory organs are endocarditis, pericarditis, myocarditis, arterial and venous thrombosis, embolism and hemorrhage. In the treatment of acute endocarditis, the most important factor is absolute rest, physical and mental, sufficient sleep, and reasonable freedom from pain. When the heart's action is becoming enfeebled,

there is restlessness, some breathlessness, pain and anxiety, there is often a temptation to give digitalis. This should not be done because of its uselessness and danger. The same holds true with regard to myocarditis. Opium in some form, either morphine or heroin, is the most valuable drug in the treatment of acute endocarditis. The next in order of efficiency and value are sthychnine, oxygen, ammonia, caffeine, camphor hypodermically in sterilized olive oil. Nitroglycerin is useful in cases in which the blood pressure is too high.

Treatment of Typhoid.—Dr. Frank Billings, after referring to the bacillus typhosus as the cause of the disease, says that as flies are now known to be carriers of typhoid and other contagions, all food exposed to possible infection by these pests should be thoroughly cooked. After the discharge of the patient, the mattress, the blankets, etc., should be thoroughly aired in the rays of the sun and, if soiled, should be disinfected by steam heat. The bed should be washed with hot water and soap. The production of artificial immunity against typhoid fever as a prophylactic measure by inoculation with typhoid cultures, or with typhoid serum, has been practised on man and animals with apparent success. At present the specific treatment of the disease is on trial. The success, however, thus far obtained is sufficiently good to give hope of still better results. For the present we must continue the management which modern medicine has shown to give the best results. The form of the disease today in the large cities is milder than that of the first eight decades of the century. Fewer cases now present the typhoid states and severe intestinal symptoms. The mortality-rate must vary with the degree of severity of epidemics. The lessened rate of mortality is due partly to the present milder form of the disease. Mortality statistics based upon any form of drug treatment are misleading. The specific toxemia is the cause of the clinical phenomena, notably fever and the nervous symptoms. The condition of the urine in typhoid fever is a good expression of the toxic condition of the patient's blood. Good nursing is indispensable for the comfort and safety of the patient. As regards diet, the main principle is to select simple, easily digested food which will leave but little irritating residue in the bowel. The digestive power of the individual is diminished and improper food or overfeeding may result in local disturbance of the digestive organs as well as possible autointoxication. To carry a patient through this disease not only good nursing and a proper diet are essential, but it is necessary to mitigate the toxemia and to be constantly on the alert to meet the complications and accidents which may occur even in the mildest cases. The toxemia is best combated with hydrotherapy. Skin friction is as important as the application of cold. With friction a lower degree of cold may be applied. The cold pack, the cold effusion, and the cold sponge, when combined with proper friction of the skin, will be followed by much more beneficial results than if the bath alone is given with the idea of reducing temperature. Diluent drinks and colonic flushings with normal salt solution afford a more rational treatment by improved excretion than all the antipyretics and antiseptic drugs.

Typhoid in Private Practise.—Dr. William E. Quine discusses this subject under the following heads: Prevention, general management, diet, water, medicines, alcohol, antipyretic medicines, intestinal antisepsis, hydrotherapy. Theoretically the disease is preventable, and that without reference to antitoxin inoculations, but, in private practise especially and in hospital practise to a large extent also, the measures of prevention perfunctorily employed are often a mockery of science and an insult to the conscience of the profession. As to general management, the patient is to be kept, when practicable, in a well-lighted and well-ventilated room as far from the living rooms and as near to the toilet-room as possible; and the distinction between day and night is to be maintained throughout the entire course of the disease. A good trained nurse is an invaluable coadjutor. In severe cases, when the circumstances of the patient admit of it, two nurses should be employed, one for the night and one for the day. In any case the nurse should receive a reasonable allotment of time for sleep and for outdoor exercise. Milk is to be given to the extent of three pints in twenty-four hours, when it is the main support of the patient, or even more freely than this when it is well digested. Eggs are not as generally given in typhoid fever as they ought to be. The abundant internal use of water is essential to the good management of any case of typhoid fever. It promotes elimination, quiets delirium, subsultus and jactitation, and favors sleep. No intelligent physician will maintain that in ordinary cases of the affection the internal administration of medicines is an essential feature of good management. Alcohol, in quantities, sometimes that would actually imperil the life of a well man, is as irrational, reprehensible and disastrous, as is the indiscriminate use of the coal-tar antipyretics. The free and sustained use of the coal-tar derivatives undoubtedly increases the duration of the disease, including the number of relapses; and it increases liability to intestinal hemorrhage. The idea that typhoid fever can be aborted by the administration of antiseptics and purgatives is a vain dream. But it by no means follows that intestinal disinfection and drainage are either unscientific in theory or useless in practise. Any good effects produced by medicines of this class are apparently ascribable to the inhibition of putrefactive processes in the bowel and of secondary intoxications of the blood. Patients refuse the Brand method of treatment, hydrotherapy, again and again. While there can be no question as to the practical success of the method in hospital practise, its acceptability in private practise in America is certain to be of slow

growth. Two persons are required to administer a bath to a very sick adult; and if the patients be uncommonly heavy and helpless and so sick as to require repetition of the baths every few hours, night and day for weeks, the services of four attendants will be required. The necessary service cannot be commanded in poor families. No person will be attracted to the treatment by seeing it administered. The laboriousness of it; the upheaval of the household it usually occasions; the appeals, protests, commands and pitiful attempts at resistance of the patient; the shudderings and cyanosis and pinched expression of misery while in the bath and the occasional recurrence of an involuntary discharge, together with the knowledge possessed by relative cases of typhoid fever not treated in this way which eventuated in easy recovery, oppose a formidable resistance to the general adoption of hydrotherapy in private practise which can be conquered only by the slow process of education.

GENERAL.

No Yellow Fever at Havana.—Havana, after experiencing the felicity of being absolutely free from yellow fever, is again afflicted. Eight cases were reported there February 14th.

Professor Von Bergmann Ill.—Among the numerous victims to pneumonia as a complication of influenza, which is now raging throughout Germany, is the celebrated surgeon, Professor Von Bergmann of Berlin.

Hospital Ship "Missouri."—The "Missouri" after an exceedingly rough passage from Nagasaki, has arrived at Honolulu. The "Missouri" had 277 sick and wounded soldiers on board when she started from Manila, during the trip 16 died. She is en route for San Francisco.

Famine Spreads in India.—It was reported from Bombay on February 7th that the famine has rapidly become worse. Already 4,000,000 persons are receiving relief and a steady increase in the number is to be expected. Deaths from starvation are becoming frequent.

Hospital Ship "Maine."—Lady Randolph Churchill reports that the hospital ship "Maine" has carried its first load of sick and wounded from Durban to the hospitals at Cape Town. There were 140 patients on board; among these were 69 wounded and many cases of rheumatism and fever.

Smallpox through Kissing.—Charles Frank of Carpenter, Ia., during a kissing-game at a church sociable, kissed three young women. Shortly after Frank became ill with smallpox and then the three young women became afflicted with the same disease. Eight cases have resulted in all and one death occurred.

Typhus in Mexico.—The Marine Hospital Service reports that an epidemic of typhus fever is raging in the little town of Santa Maria, Mexico. The population of the village is not over 400. Previous to January 26th there had been reported 24 cases and since then a sufficient number to make a total of 60 cases.

A Change in Date.—The meeting of the American Medico-Psychological Association in Richmond, Va., will be held May 8, 9, 10, 11, and not on May 1, 2, 3, 4, as heretofore announced. The change in date is made to enable members to attend the Congress of American Physicians and Surgeons in Washington, May 1-4.

Skin-Grafting Suit.—Injuries to Miss Susie Kelly of North Adams, Mass., necessitated a skin-grafting operation, which was done by Dr. M. M. Brown, Miss Rose Murphy permitting Dr. Brown to take from her skin the necessary grafts. After the operation Miss Murphy sued Dr. Brown for taking more skin from her body than she authorized him to take. The Court decided in Dr. Brown's favor.

Leprosy in America.—Father L. W. Mulhane, who has done much for the lepers in the United States, has been studying the leprosy problem in Cuba. Father Mulhane considers that leprosy is increasing in Cuba and in the United States, and that it is likely to become formidable in this country by introduction from our new colonial possessions unless the Government takes steps to establish a home where the lepers can be kept isolated from the rest of the community. He believes that there are now 5000 lepers in the United States.

Disease Germs in Books.—The Scranton (Penn.) Public Library was closed during the two weeks ending February 10th, by order of the Board of Health of that city. It was feared that diphtheria and scarlet fever, which are epidemic in Scranton, were being spread by the circulation of the books. The directors asked that a daily list of contagious cases be furnished them so that they could refuse books to those with sickness in their families. The Board of Health refused, saying that the negligence of physicians has left them in ignorance of most of the cases of contagious diseases.

Resignation of Dr. Wortman.—Dr. J. L. Wortman resigned the curatorship of the Department of Vertebrates at the Carnegie Museum in Pittsburg on February 6th. The cause was a disagreement with the Rev. Dr. W. J. Holland, curator of the museum. One of the gentlemen maintained that certain bones dug from the fossil beds of Wyoming were those of the Brontosaurus, while the other insisted they belonged to the Dipsodocus Magnificus. This recalls the "Row upon the Stanislaus," which Bret Harte's verses have made memorable. Dr. Wortman has returned to his old place in the laboratory at Yale.

Book and Paper Distribution.—The twenty-fifth annual report of the Hospital Book and Newspaper Society shows that during its last fiscal year there were distributed by it 5812 books, 26,777 magazines, 71,140 weekly and illustrated papers, and more than 200,000 daily newspapers. More

than a dozen women, working two or three mornings in a week, are scarcely sufficient to distribute this material weekly to the society's beneficiaries which number over two hundred, and which include city institutions under the Charities and Correction Departments, hospitals, prisons, schools, lodging-houses, light-houses, life-saving stations, libraries in mining districts, the Army and Navy, and such people as live in remote places where there are no other facilities for obtaining reading matter.

Aseptic Vaccination.—The wide-spread foci of invasion of smallpox which exist at the present time throughout a large portion of the country necessitate an unusual amount of vaccination. It is fortunate that there is at the present time the most approved form of virus that has ever been produced in the form of glycerinated vaccine. In the use of it some modification of the old method of vaccination must be adopted. There are certain steps that should be taken and certain errors that must be avoided. These perhaps are best summed up in the form of a few "dont's" for the operator, as follows: (1) Don't prepare the site by washing with antiseptic solutions, but scrub the arm thoroughly with soap, brush and hot water, and dry with a clean towel. (2) Don't draw blood if you can help it. A gentle oozing of serum gives a much better result. (3) Don't fail to rub the vaccine thoroughly and persistently into the abrasion. (4) Don't replace the clothing until the vaccine is thoroughly dry. (5) Don't apply antiseptic dressings. By following these instructions there should not be more than one or two failures in a hundred.

Pneumonia That Only Threatens.—Under this heading Dr. George Dunsmore of St. Albans, Vt., in the *Med. Times*, takes his professional brethren to task for ignoring or cultivating the impression that such a disease exists. After narrating the story of the students, who thought to trap the professor of entomology by presenting him for classification several bugs that they had previously disemboweled, disarticulated, and reconstructed from the remains, and were informed after careful scrutiny that the specimen was a *humbug*, declares that he is very much afraid that the bug of the disease above mentioned is a similar specimen. Pneumonia, like a club, can leave no mark until it strikes and cannot strike so long as it only threatens to strike. Within a year a woman said to him, "You cannot imagine what a narrow escape I had from pneumonia. The doctor said he never saw any one come so near having it and not have it." On another occasion a patient remarked, "The doctor said I was threatened with pneumonia, and made me three visits that day; but I was only threatened with it." Query—If a threat requires three visits a day, how many would the reality need?

The "Mississippi Valley" Transactions.—The Missisippi Valley Medical Association at its last meeting, the twenty-fifth annual session, decided to preserve its transactions by publishing them in book form. The first volume, which is a compilation of the proceedings of the meeting held at Chicago, October 3, 4, 5, 6, 1899, is just at hand. In this we learn from a brief historical sketch that the society was organized in 1875 under the name of the Tristate Medical Society—the members were residents of the States of Indiana, Kentuck and Illinois. In 1883 it was found that physicians from many other States had become members, and it was decided to enlarge the sphere of the society. The name was accordingly changed to the Mississippi Valley Medical Association. At the present time the membership is really national in its scope. The present volume is a large octavo, printed in clear type, and the material is well arranged. The excellence of the papers insures for the society a place among the foremost medical associations in the country. The appearance of the volume certainly does credit to its compilers, except, perhaps, the color of the binding, which is unfortunate.

Medical War News.—Almost the only subject of interest and conversation in medical circles, as in all others in London is the war. Not a week passes but from one to a dozen members of the profession are announced as going to the front in one capacity or another. Nor is it merely surgeons and general practitioners who are volunteering, the specialists have caught the infection as well. Mr. L. Vernan Caryill of Kings College Hospital, a well-known ophthalmic surgeon on the teaching-staff of the Medical Graduates' College and Polyclinic, and Mr. L. N. Pedley, lecturer upon dental and oral surgery at Guy's Hospital, are both going out in connection with the Imperial Yeomanry Hospital. So many cases of bullet-wounds of the face and jaws have already been reported that the special skill of both these gentlemen will be most welcome and find abundance of useful occupation at the Cape. No less than twenty surgeons and forty nurses are going out on the staff of this hospital. Since the distressing reverses and blunders of the past few weeks, the English press is more and more forcibly calling attention to the fact that the one department of the army in which blood and social position cut no figure, but which is open to all who can win on their merits, the Army Medical Corps, has scored the one success of this campaign. Men, who until the most recent date were hardly recognized as "gentlemen" by the haughty combatant, and are still treated with the scantest courtesy by the War Office, have carried out their war-work with brilliant success to a chorus of universal praise. While the efforts of their social "superiors" have resulted in blunder after blunder, culminating in serious disaster relieved only by the bravery and determination with which it has been faced. And the contrast is keenly appreciated by the English people. The only redeeming feature of the campaign so far have been the steady bravery of the fighting-line and the splendid manner in which relief has been afforded to the victims of the generals' blunders.

The latest instance of the gross stupidity and hereditary genius for blundering of British officialdom has just been furnished by the attitude of the War Office in respect to the accommodation of soldiers invalided home. Months ago offers began to pour in upon them of beds here, wards there, entire homes or hotels elsewhere, but it has now been discovered that to the majority of these generous offers no definite reply has yet been sent and in some cases not even a letter of thanks for the offer, the official excuse being that they are doubtful as to the possibility of maintaining due military discipline in such scattered institutions! At the same time the Government Homes and Hospitals are confessedly utterly inadequate and the War Office is muddling about attempting to secure beds in the already sadly overcrowded London hospitals. One offer to build a home capable of accommodating 150 men close to the Herbert Hospital at Woolwich was not even vouchsafed the courtesy of a reply and has naturally been withdrawn. At least two-thirds of the estimated 3500 beds required have been offered by private generosity; 2000 casualties occurred at the front last week alone, and yet the wise men of the War Board cannot overcome their scruples as to the sacred preservation of discipline and accept the noble gift before their own limited accommodations are hopelessly overcrowded.

CORRESPONDENCE.

THE TREATMENT OF ANEURISM BY GALVANISM THROUGH INTRODUCED WIRE.

To the Editor of the MEDICAL NEWS:

DEAR SIR:—Concerning the application of the galvanic current for its electrolytic effect on the circulating blood in the treatment of aneurism, and your kind reference in a recent issue to my pioneer work with the method, I desire to ask for space to note that one of the important facts so demonstrated is that not a *mild* (as you have stated) but a *strong* current (through the anode) may be employed with absolute safety and benefit. In respect to this in my first paper on the subject (*American Journal of the Medical Sciences*, Oct., 1892), in speaking of the inutility of mere galvanopuncture in the treatment of aneurism and of the immense superiority of the method I described, I remarked that galvanopuncture practised as advocated in text-books on electricity is useless indeed—such as a current of but 20 to 30 milliamperes, and this applied for only a few minutes. I said that "the interpolar resistance is so great with one electrode externally that an electrolytic action to any purpose necessitates a current strength and the duration of its application much in excess of this." I remarked that "fifty milliamperes are none to great nor an hour's session too long, if permanent results are to be hoped for;" that "no greater risk attends the application of a strong current and a long session provided the needles are properly insulated."

The current's strength and the duration of its passage (through the introduced coiled wire) in the cases operated on by me and in those I supervised were as follows: Case I, thoracico-abdominal aortic aneurism, 70 milliamperes for 1 hour; Case II, innominate aneurism, 80 milliamperes for 1/4 hours; Case III, innominate aneurism, upward of 70 milliamperes for 65 minutes; Case IV, abdominal aortic aneurism, 50 milliamperes for 30 minutes; Case V, thoracic aortic aneurism, 80 milliamperes for 1 hour; Case VI, abdominal aortic aneurism, 65 milliamperes for 57 minutes; Case VII, thoracic aortic aneurism, upward of 70 milliamperes for 1 hour; Case VIII, thoracic aortic aneurism, operated upon on three separate occasions, (1) upward of 80 milliamperes for 1 hour; (2) 100 milliamperes for 77 minutes; (3) 100 milliamperes for 75 minutes.

In my later papers on this subject (*British Medical Journal*, Aug. 14, 1897, and *Philadelphia Medical Journal*, Nov. 12, 1898) I have especially emphasize the fact that my experience has shown that to obtain the best results the current's strength must be high and the session long, and that "by the application of a strong galvanic current through coils of wire, so disposed that all areas of the sac are reached, it follows without exception, as has been noted in all recorded cases, that consolidation by virtue of clot-formation is promptly and invariably produced. The solidification is rapid and is generally manifest before the end of the electrical session, through changes apparent to the eye and the hand, in the pulsation and in the degree of consistence of the sac-wall. These changes become more decided in the course of a few days, until, after a time, in the most favorable cases a hard nodule, with a communicated pulsation only, replaces the previous expansible tumor."

D. D. Stewart, M.D.

1429 Walnut street, Philadelphia,
February 1, 1900.

ARE ACQUIRED CHARACTERISTICS HEREDITARY?

To the Editor of the MEDICAL NEWS:

DEAR SIR:—My excuse for troubling you with this letter is that the subject of it constitutes one of the most important questions of the present day.

The *Journal of the American Medical Association* for November 18, 1899, contains an editorial entitled the "Transmission of Acquired Characters," which is, in reality, a criticism of a paper read by an English physician, Mr. Archdall Reid, at the last meeting of the British Medical Association. This gentleman said that, "though the whole plant and animal kingdoms have been ransacked, no single instance of the transmission of an acquired character has yet been proved" to which the erudite editorial writer answers by asking, "Is he (Mr. Reid), as

it seems he must be, ignorant of the testimony of Brown-Séquard, Westphal, Romanes and others when he makes this statement?" The ignorance is elsewhere; Mr. Reid, with whom I am not personally acquainted, and who is well able to take care of himself, has written a book called "The Present Evolution of Man," a perusal of which would demontsrate his familiarity with the whole of the evidence.

Nobody outside the medical profession any longer attaches any importance to Brown-Séquard's investigations, "concerning which recent experiment and inquiry have raised considerable doubt." The quotation is from a letter by Professor Ray Lankester, published in the *Lancet* of March 6, 1897, page 696. As, however, he has not the advantage of being a member of the medical profession, his opinion will, I fear, carry no weight among physicians. It is useless, therefore, for me to mention the experiments to which he refers. Westphal was one of Brown-Séquard's assistants who produced what he was pleased to call "epilepsy" in guinea-pigs without any incision, by striking the heads of the animals with a hammer. It seems somewhat remarkable that this kind of "epilepsy" is not transmitted when other persons try this experiment. As to Romanes, a reference to page 154 of Vol. II. of "Darwin and After Darwin" (published in 1897) will show that he was very far from being convinced that acquired characters are transmitted. "In the present state of our information," he writes, "this judgment" (that acquired characteristics are hereditary) "must be deemed provisional, or liable eventually to be overturned by experimental proof of the non-inheritance of acquired characters." (Mr. Romanes died in 1894, so that it is impossible to communicate with him as to any change in his opinion after the publication of his book.)

The writer of the editorial in the *Journal of the American Medical Association* attaches much importance to Talbot's cases of Jewish boys being born already circumcised, probably because the facts are supplied by a physician. But this evidence is open to two serious objections: (1) How is it that only two per cent. of the boys examined by Dr. Wolf "were born partially circumcised" and "only six per cent. were born with a short prepuce?" ("Degeneration," by Eugene S. Talbot, p. 47). Surely, if acquired modifications are *usually* transmitted, at least sixty per cent. of Jewish boys ought to come into the world without a foreskin. (2) No careful enquiry seems to have been made in order to ascertain how many non-Jewish boys are found with a congenital absence of the foreskin.

I do not hold a brief for Weismann, and in my humble opinion many of his hypotheses are untenable. Indeed, they belong to the region of metaphysics, and are altogether outside the range of science. I cannot understand, however, in what way this admission injures the neo-Darwinian contention that, *as a rule*, acquired modifications are not transmitted. Neo-Darwinians do not assert that they never are and never can be; they leave that pleasure to the Weismannians. Almost all that we know about heredity has been learned from investigators outside the medical world; pathology is not a safe guide in questions of general biology, because diatheses play so important a part in cases of disease. An example of an easily explained error may be found in the assertion of the late Sir William Roberts (Allbutt's System of Medicine, Vol. III., page 181) that "the history of gout supplies some important instances of the possibility, so much debated among biologists, of the hereditary transmission of acquired characters."

The author of the editorial in the *Journal of American Medical Association* is evidently ignorant of what, for want of a better name, I have called "pseudoheredity,"[1] and he still writes, I suppose, of "hereditary" syphilis and not of "congenital" syphilis. The latter part of the editorial leads me to think that some medical men have not the vaguest idea of what the word "heredity" means even in pathology. It is neither the transmission of identical disorders nor of symptoms, but the passing-on from one generation to another of "organic dispositions"—(Morel).

When a host, upon which a parasite is living, undergoes starvation, the parasite often suffers. Likewise, when a pregnant woman indulges in alcoholic drinks to excess, the infant at birth and afterward, may show the results of its mother's depravity; but in neither case is there anything of the nature of true heredity, as I understand the facts. Both cases are examples of pseudoheredity. It is possible, I imagine, that the milk of an alcoholic woman may contain alcohol, and that her infant, by the consumption of it may, at an early age, acquire a taste for liquor in this way. But this hypothesis has no suggestion of heredity about it.

In recent volumes of the Proceedings of the English Royal Society may be found accounts of a number of interesting experiments made by Mr. Walter Heape. He has succeeded in transferring fertilized ova from rabbits of one breed to rabbits of another. If the foster-mother has in any way influenced the progeny, nobody has discovered it. This evidence is unfavorable to the neo-Lamarckian hypothesis that acquired characters are transmitted, but it is by no means conclusive.

I must apologize for the length of this communication, and must explain that Mr. Reid lives in England and is not likely to see the fallacious editorial in the *Journal of the American Medical Association* in time to reply. Moreover, if there is one question which demands the attention of scientific men more than any other, it is the question which I have written at the head of this letter.

Lawrence Irwell, M.A., B.C.L.

344 Hudson street, Buffalo, N. Y.

[1] Dietetic and Hygienic Gazette (New York), p. 12, January, 1898.

OUR LONDON LETTER.

[From Our Special Correspondent.]

LONDON, February 3, 1900.

ENLARGEMENT OF THE YEOMANRY HOSPITAL—PRAISE FOR MR. TREVES—BRAVERY OF MEDICAL OFFICERS—LARGE BEQUESTS TO LONDON HOSPITALS—A DOCTOR'S REMINISCENCES—"FERTILIZER" PURCHASED FOR HUMAN FOOD.

So generous has been the popular response to funds for this, the latest of the war-hospitals, that the Committee announces its intention of equipping a branch field-hospital as well. The original plan of a base-hospital at Wynberg with 500 beds has already received sufficient promise of support to ensure its complete and rapid realization. The Yeomanry is a specially favorite corps with the British public, as it represents almost the first active participation in the war of the great middle-classes of society. So far the rank and file of the army have been drawn almost exclusively from the "lower" or working classes and the officers from "society" and clubland, leaving the real backbone-class of the country almost unrepresented. This defect is, however, being rapidly amended as the need of the country and seriousness of the situation becomes more clearly appreciated.

Several of the war-correspondents at the front speak in their letters in terms of highest admiration of the skill and success of Mr. Treves as an operator. He is devoting himself chiefly to abdominal operations, for which his well-known brilliant research studies and exceptional surgical experience have specially qualified him, and his successes are attracting wide attention. The reports dwell specially upon the resources shown in organizing his operations and adapting himself to circumstances and the marvelous rapidity with which one difficult and delicate operation after another is carried through without a single hitch when working under the fearful pressure of the flood of wounded upon the field of battle itself.

One result of the enormous increase in the range of modern rifles has been a serious one for army surgeons. So tremendously has the width of the "zone of fire" been increased that the surgeon must practically be almost as continually under fire as the fighting-line itself and, what is worse, carry out all his first dressings and emergency operations with the knowledge that at any moment another bullet may either render his ministrations unnecessary or put an abrupt stop to them. This would hardly seem conducive to cool judgment and precise bandaging, but Sir Wm. MacCormac especially praises the skill and efficiency with which the dressings of the wounded brought into the field-hospital had been applied, for the most part under a perfect hail of bullets. The first sign of hesitation on the part of medical officers to go wherever their services are required has yet to be recorded and many of them have received special mention for conspicuous bravery in the discharge of their errand of mercy. Among these is Surgeon-Major Babtie, who, after the annihilation of Long's battery in its reckless charge to the front, rode not merely up to the firing line but far in advance of it, across a belt which had been literally swept clear of every living thing by the storm of bullets, to reach a gully into which the survivors of the battery, including poor young Lieutenant Roberts, son of the Commander-in-Chief, had dragged themselves for shelter. His horse was killed under him, but he himself escaped in some marvelous manner and for seven hours was in sole charge of a score or more of wounded men, lying under a blazing African sun and without water, save that contained in his own bottle, which he doled out in dram doses.

One of the most generous gifts ever made to English hospitals is that conveyed by the will of the late Professor Hughes, whose death occurred in London last week. This distinguished scientist, the inventor of the microphone and of the printing telegraph-machine, both of which brought him in large royalties so that his income was estimated at $200,000 a year, left the whole of his large estate, aggregating two and a half million dollars, to the charitable and educational institutions of London. Hospitals came in for the lion's share, four of these receiving no less than $400,000 each. These four are Kings College Hospital, the Middlesex Hospital, and two others whose names are withheld. The money, however, is not to be paid until twenty years after the death of Mrs. Hughes. The testator was at one time professor of music and of scientific subjects in a little denominational college at Bardstown, Kentucky, and most of his inventions were made in America, although he was born in England.

Much interest is aroused in the profession by the announcement that Sir Joseph Fayrer is preparing a volume of "Reminiscences" which Blackwoods will publish in the spring. Apart from his brilliant services to medicine and all the picturesque associations of a lifetime in India, Sir Joseph has had a most varied and even adventurous career. He began his Indian service, for instance, by being shut up in Lucknow, through the whole of the celebrated siege and shared in the transports of the "relief," which has passed into song and story, while a large part of his life has been occupied with campaigns against cholera, plague and famine. If the book is not a success it will not be for lack of abundance of stirring episode and a great personality behind it.

A most extraordinary case of attempted sale of decayed food has just been before the police-courts here. In the cellar of a provision dealer a large number of "blown," bulging and otherwise spoiled cans of preserved meat, vegetables and fruits were discovered. Their owner alleged that he was "only going to pick them over" and sell what were unspoiled. Upon inquiry, however, it was discovered that the entire lot of 650 tins had been bought of a dealer as rubbish for

fertilizing purposes! The price paid for the collection was $5, and the dealer had not the slightest suspicion that any of them were to be sold to be used for human food. The defendant was sentenced to three months imprisonment with hard labor, the magistrate remarking that the thought of such depraved greed made him shudder.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

RUPTURE OF THE UTERUS—ALBUMINURIA OF PREGNANCY—OPERATION FOR TUBERCULOSIS OF THE SEMINAL VESICLES—PAROXYSMAL HEMOGLOBINURIA IN A CHILD—RECURRENT MALIGNANT TUMOR OF THYROID GLAND—ANKYLOSIS OF JAW CURED BY RESECTION—COMPLETE MASTOID OPERATION FOR CHRONIC PURULENT OTORRHEA—ON THE TRAUMATIC PRODUCTION OF CANCER.

H. SPENCER read a paper on rupture of the uterus before the Obstetrical Society of London January 3rd. In four cases he packed the rent with iodoform gauze introduced through the vagina. All of these patients recovered. Eight others whom he had treated by other methods died, either in a few hours from shock and hemorrhage or in a few days from sepsis. He expressed his views as follows: (1) Abdominal section is rarely required, and then only in cases in which the fetus has passed wholly or in great part into the peritoneal cavity. It should be performed rapidly under local infiltration anesthesia, and should be followed by flushing of the peritoneal cavity with normal salt solution and by suture of the tear, if possible; or, if this be not possible, by packing the tear with iodoform gauze and draining by the vagina or abdomen. (2) Abdominal hysterectomy is hardly ever necessary. When the broad ligaments are so much damaged as to endanger the vitality of the uterus, vaginal hysterectomy should be performed. (3) All incomplete tears implicating the broad ligament and almost all complete tears should be treated by packing the rupture per vagina after removing clots and fluid blood.

P. HORROCKS also reported cases in his own practise in which this method of treatment had been successful, but the success was to be attributed to the aseptic conditions under which labor had been carried out, no less than to the gauze packing. If a patient cannot be treated in this manner, the abdomen should be opened and the tear in the uterus sewed up with silk.

HERMAN advocated vaginal hysterectomy if the rupture cannot be satisfactorily treated by gauze packing. Partial suture of a uterine tear is worse than useless. The suture should be perfect or not attempted at all.

At the Edinburgh Obstetrical Society, January 10th, J. RITCHIE read a paper on albuminuria of pregnancy. Even if the amount of urine be small and not accompanied by any signs of organic renal disease, the nutrition of the child is often gravely affected. In such conditions two dangers exist, *viz.*, danger to the mother from eclampsia and danger to the child from malnutrition. For eclampsia three conditions are requisite: (1) A certain quality of the nervous system; (2) a toxemia, and (3) some peripheral irritation. Treatment, therefore, should reduce the amount of nitrogenous food, limit the production of toxic matter, and favor elimination. Rest in bed, moderate purgation, diuresis by means that do not increase arterial tension, and limited feeding seem to be the main points to be observed.

At the Medical Society, January 8th, M. MOULLIN reported two cases in which he had removed tubercular seminal vesicles through a transverse perineal incision. The disease had extended upward from the epididymis, so that the testis and cord were first removed by a scroto-inguinal incision, the cord being divided as high up as possible. The patient was then placed in the lithotomy position and the seminal vesicles and ejaculatory ducts were dissected out. There was very little bleeding. The sphincter was stitched to the centrum tendineum and the wound stuffed with iodoform gauze. Both patients recovered promptly, although one was troubled for some months by a small urinary fistula, due to the fact that the ejaculatory duct was torn out of the urethra. Moullin strongly advocated this complete operation in every case of tuberculous epididymitis in which the seminal vesicles can be distinctly felt through the rectum.

At the Clinical Society of London, January 12th, LUNN spoke of paroxysmal hemoglobinuria in children and presented a patient, aged six, the tenth of twenty-four children in whom the peculiarity was noticed when one year of age. From time to time she passed port-wine urine containing red blood-cells. She usually had a chill and collapse when an attack was imminent, but in the intervals her health wos good.

VOELKER commented on the fact that in a large proportion of these cases there is a definite history of syphilis. On examining the blood he had noticed an unusual tendency of the corpuscles to cohere, so that they formed snake-like coils, and the corpuscles themselves were elongated.

C. SYMONDS showed a patient who had had malignant disease of the thyroid and on whom he had twice operated. The interesting points were that the disease remained localized in the left lobe, and the long duration of the tumor—eleven years.

A. BARKER said that malignant tumors of the thyroid often run a chronic course, one in his own practise lasting eighteen years.

J. CLARKE showed a girl eighteen years of age, whose jaw he freed by removal of the neck of the bone on the right side. Ankylosis had been complete for three years. The patient rapidly gained flesh and was able to open the paw for an inch and to close it perfectly.

At the Royal Medical and Chirurgical Society, January 23rd, C. A. BALDWIN spoke of the mas-

toid operation for the cure of chronic purulent otorrhea. He pointed out that the selection of cases for the complete mastoid operation is surrounded with difficulty, and that large experience rather than rigid observance of any rule is the best safeguard against the risk of delay, on the one hand, and the performance of an unnecessary operation on the other. The cure of chronic otorrhea cannot be effected by simply opening the antrum. The complete mastoid operation which involves damage to the tympanic structures is inapplicable to acute cases. Intractable chronic otorrhea should be treated by two operations: (1) The operation for the removal of the disease, *i.e.*, the complete mastoid operation, and (2) the operation for the healing of the wound, *i.e.*, by the epithelial grafting of the raw bone cavity.

At the Pathological Society of London, January 16th, T. G. STEVENS gave an account of the bacterial examination of a thrombosed ovarian vein following hysterectomy, the patient having died from subacute septicemia. The right ovarian vein was found to be thrombosed from the ligature to the vena cava. Cultures made from it showed colonies of the bacillus coli communis and the bacillus pyocyaneus.

W. PAKES found the bacillus proteus vulgaris in a clot in the left iliac vein of a patient dying from phthisis and tuberculous enteritis.

S. G. SHATTOCK exhibited a specimen of "spontaneous" carcinoma of the uterus of a rabbit. The growth was of a papillomatous type and, besides many uterine foci, there were peritoneal nodules. Histologically it was columnar-celled carcinoma. The interest in the specimen was due to its bearing on the conclusions stated in a paper by L. Lack, who exposed and scraped the ovaries of a rabbit and then closed the abdominal wound. Twelve months later the animal showed signs of abdominal carcinoma and was killed. Carcinomatous nodules were found throughout the peritoneal cavity and in the lungs. The conclusion drawn at that time was that the carcinoma was due to scraping the ovaries, but Shattock's case showed that similar carcinomatous nodules may arise spontaneously and that, unless Lack's result can again be obtained, it must be looked upon as a coincidence. The dissemination of peritoneal papillomata after rupture of a papillomatous ovarian cyst is not a safe comparison, since normal characters cannot safely be ascribed to such epithelium. When the case of normal epithelium is considered, such experiments as have been made seem to oppose the hypothesis that carcinoma can be caused by the mechanical introduction of normal epithelium into the lymph spaces. The intravascular injection of gland emulsions by Lubarsch and his pupils was in no case followed by the growth of tumors. Neither did tumor formation follow the traumatic detachment of tissue whether the fragments remained *in situ* or were transplanted to another animal of the same species.

C. A. BALLANCE said that it is now generally recognized that the action of normal epithelial cells when transplanted into other tissues or lymph-spaces is limited. Normal cells when so transplanted have only a certain power of development, but when malignant their power is unlimited. What is this power of malignancy? Lack's experiment does not settle the question, but in the Graafian follicle there is something quite special, for if these epithelial cells come into contact with (become infected by) certain other cells, the spermatozoa, they at once take on that most remarkable power of growth which results in the development of the fetus. Lack's experiment to be of value must be repeated many times. He himself had many times thought that he had discovered a law, when further experimentation showed him that it was only a coincidence which he had hastily assumed to be a law.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.—SECTION ON MEDICINE.

Stated Meeting, Held January 16, 1900.

John H. Huddleston, M.D., Chairman.

Plague Bacillus.—Dr. W. H. Parks demonstrated, as noted in a previous number of the MEDICAL NEWS (page 104) the bacillus of the plague. His specimens had been isolated from the cases recently brought to New York from Santos, in Brazil.

Dr. F. S. Fielder read a paper entitled "A Criticism of a New Method of Preparing the Skin for Vaccination by Denudation with Caustic Potash Solution."

Technic of Vaccination.—In discussing Dr. Fielder's paper Dr. Morris said that the sentimental objections of the pain and flow of blood caused by the old method of inoculating vaccine were really not deserving of the consideration which seem to have been given them in the effort to invent a new method by the use of caustic potish. The pain is really very insignificant. It is possible to vaccinate a sleeping babe without waking it. Even highly neurotic children when a little care is exercised give very few signs of pain. It is scarcely necessary to have more than a show of blood and the vaccination will take very well. The use of caustic potash will almost surely leave a scar whether the vaccination takes or not. In the case of unsuccessful inoculation this may easily prove a source of error later on and the patient thus be subjected to the danger of taking smallpox at a time when he is thought to be protected. There is no such thing as a characteristic scar of vaccination. Any physician who has had to examine many arms knows this very well. The bite of a dog, or a knife in the hands of a careless boy, may easily produce a scar that will be taken even by an expert for a vaccination-mark unless he knows the history. It is very dif-

ferent now to the state of affairs that existed when human virus was used. Then the portion of scab was inserted beneath the skin with a lancet and a rather deep scar was the result. Any one who as a boy has with a little sand produced "fox bites" on himself or others must know how easy it is to produce a scar that will resemble very much the vaccine mark left after the modern method of vaccinating.

Success of the Present Method.—The number of failures by the newly suggested method of vaccination is entirely too high. Good virus under the old method will give nearly one hundred per cent. of successful vaccinations. In about 1500 vaccinations during this last year the percentage of successful cases has been more than 95. Nearly all of the failures occurred in obstinate colored children who refused to be vaccinated and who by means of spittle and rubbing with their clothing endeavored to remove the vaccine virus as soon as the doctor's eye was turned away. Without these cases the percentage of successes would be nearly 100. By present methods there is very little danger of secondary infection. In the old days erysipelas sometimes occurred during the summer time so that it was the custom to advise vaccination during the colder months unless there was an epidemic. This rule would seem to be a good one still, although now, taking arms just as they come and without any preliminary cleansing, it is extremely rare to have any complications. In one case in which every precaution of the most extreme surgical cleanliness was taken, because the parents were very much opposed to vaccination, the child nevertheless developed a rather serious "bad arm," with swelling to the wrist and a condition that reminded one of cellulitis. Despite threatening and disquieting symptoms it recovered completely without surgical interference.

Practical Point in Vaccination.—Dr. William H. Park said that with the virus issued by the Board of Health at present it is very advisable to make only a small denudation. Over and over again where complaints have been made of the severity of the sore caused by the Board of Health's virus it has been found that the doctor neglected to read the directions issued by the Board of Health and denuded a large space, the size of a penny or more, as it was the custom to do before the present concentrated virus was used. The result in such cases was, of course, a large ugly sore that takes a long time to heal. As to the swelling which takes place after vaccination in certain cases an idiosyncrasy of the individual seems to have a good deal to do with it. Dr. Park himself was vaccinated while an intern at the Roosevelt Hospital. The arm swelled up from the region of the clavicle and scapula all the way down to the ends of the fingers. One of the surgeons pronounced it cellulitis and wished to incise it. This was not permitted, however, and the arm became entirely well without any other treatment than evaporating lotions.

Justus Blood Test for Syphilis.—Dr. D. H. Jones read a paper on the test for syphilis introduced by Justus in an article in *Virchow's Archives* in 1895. The test consists in noting the susceptibility of the red blood-cells to the action of mercury. If the patient is suffering from active syphilis a mercurial inunction or a subcutaneous injection of mercury is followed by a distinct diminution in the hemoglobin value of the blood. This diminution of hemoglobin seems to be due to the fact that a number of red blood-cells are destroyed by the mercury. Justus has tried it now in some 300 cases and it has been positive in every case of active syphilis while it has been absent in a large number of controlled cases. Dr. Cabot of Boston tried the test in some twenty cases and made a confirmatory report as to its value. The hemoglobin was found to be reduced by a single inunction from 10 to 20 per cent. Dr. Jones tried the test in 53 cases; 35 of them had a history of syphilis and 18 were used for purposes of control. Of the 35 syphilitic cases 17 were in the active stage, and of these 13 gave a positive reaction to the test and 4 did not react. In 6 cases where chancres existed without secondary symptoms the test was positive in only 1 case. In 2 cases of latent syphilis the test was negative. Of 7 cases of adenitis after chancre 5 gave positive reaction and 2 negative; in some of these cases secondary symptoms were just beginning. In one case of mucous patches, but without any history of syphilis, the test was negative. Justus claimed that his test was positive only for syphilis in the active secondary stage, so that Dr. Jones' work is confirmatory of the original report, although the test does not prove as unfailing as Dr. Justus originally announced. The test will undoubtedly be of service for diagnostic purposes but it has not the value that was claimed for it. Like the diazo reaction the test is of significance when positive but not when negative.

Hemoglobin in Other Infections.—Dr. Ewing in discussion said that active syphilis undoubtedly causes the presence in the circulation of certain toxic substances which make the red blood-cells more delicate. The absorption of mercury into the system under these circumstances acts as a globulicide and the test might very well prove of value. It is probable, however, that the action of syphilis on the red blood-cells is not specific and that other acute infections, as for instance malaria and septicemia, would produce a similar effect upon the red blood-corpuscles Before the test could assuredly have any practical value it should be tried extensively on such cases.

Dr. Lapowski said that for the success of the Justus test all that is necessary is the absorption of mercury. A single inunction of mercury or a single dose of it by any other means is sufficient for the test. Later on under the influence of mercury the red blood-corpuscles increase in number and the hemoglobin value returns to the normal.

Treatment of Vertebral Rheumatism.—Dr. H. Forrestier of Aix-les-Bains read a paper in which he described five cases of the pseudoneuralgic form of chronic vertebral rheumatism. While the text-

books mention torticollis and lumbago, very little is said of the spastic conditions induced by rheumatism in other portions of the spine. In five cases which Dr. Forrestier has had under treatment the stiffness occurred mainly in the dorsal region and the patients, as a rule, were more comfortable sitting than lying down. In some of the cases other joints were swollen because of the rheumatism and sometimes the knee-jerks were exaggerated and other nervous symptoms were present. All of the cases were benefited by douche massage, that is, by massage given while a strong douche of water, at a temperature of from 85° to 95° F., is played over the part which is being kneaded. The massage is given not gently, but with a good deal of force. The results of the treatment are encourageing from the beginning and the relief obtained seems to be lasting.

In discussion Dr. Virgil P. Gibney said that in young people, where the rigid condition of the spine develops which is so characteristic of chronic vertebral rheumatism, it is well to be sure that there is no latent Pott's disease. Such cases of tuberculous degeneration of the vertebra often run an extremely slow, insidious course without any localizing symptoms and massage would be the very worst thing for them.

NEW YORK COUNTY MEDICAL ASSOCIATION.

Stated Meeting, Held January 15, 1900.

The President, Frederick Holme Wiggin, M.D., in the Chair.

Drainage of Pyosalpinx.—A paper describing a new method of retroperineal drainage for this disease, with a report of five cases, was read by Dr. Leon F. Garrigues. The paper, with the discussion which followed it, will appear in a subsequent issue of the MEDICAL NEWS.

Strangulated Hernia.—Dr Parker Syms said that the prominent feature of a strangulated hernia is the constriction of blood-vessels which occurs at the point of strangulation and which will inevitably lead, unless relieved, to gangrene. This practically always fatal termination must be guarded against. The sooner measures are taken for the relief of the constriction the better. Active interference alone, and not expectant treatment, can be relied on with any assurance to save patients. In these days of aseptic surgery, when hundred of operations for the radical cure of hernia are reported without a single death and when the death-rate from abdominal operations is extremely low, there is no reason for the delay that used to be advised in these cases. As soon as the diagnosis of strangulated hernia can be made, operation should be performed. It is the progress of the disease, not operative interference, that is to be feared. The symptoms of this condition are those of acute intestinal obstruction with certain additional local symptoms. There is abdominal shock, and localized pain and tenderness over the hernial sac. Shortly after the development of these symptoms typanites manifests itself and absolute constipation sets in, except for such fecal matter as may have been contained in the large intestine below the constriction. The pulse becomes weak and rapid, with the wiriness characteristic of serious abdominal conditions. Vomiting manifests itself after some hours and consists, at first, of the contents of the stomach, then of the partially digested contents of the upper small intestine and finally of a more or less gruelly fecal matter. The Hippocratic face with pinched, drawn, anxious expression, is usually present. There is in addition a characteristic combination of fear and braggadocio in the patient's manner. That he is anxious and worried is clear, and yet he is apt to keep assuring himself and others that he is all right. This may become almost a form of delirium or hallucination. The general circulation becomes sluggish and the extremities especially give evidence of this fact. Although practically all the text-books advise it, taxis should not be employed. It always does more harm than good, and many a fatal termination or serious complication to operative interference is really due to the ill-advised continuance of more or less forcible efforts at reduction. All that should be done in this way is to put an ice-bag over the hernia and place the patient in a favorable position for the return of the hernia within the abdomen. No food should be given as long as the symptoms continue. Operation should be done before any severe symptoms set in. Confirmation of the diagnosis by fecal vomiting or collapse should not be waited for. It must be borne in mind that even gentle manipulation of a hernial sac in which gangrene is threatening may not be free from danger.

Technic of the Operation.—Usually the patients are not able to stand general anesthesia. At least, the risk of operation seems to be considerably increased thereby. Morphine and whiskey, about a half-a-grain and an ounce respectively should be administered some twenty minutes before the operation, and then local anesthesia should be employed to prevent severe pain. The incision should be free in order that the site of constriction can be seen. Even if the intestine looks gangrenous it may recover. It is not sufficient merely to place hot towels around it and wait for half an hour to see if the circulation may be restored, but the wound should be left open for a day or more and every opportunity given for the intestine to recover its impaired vitality. If the intestine looks reasonably healthy and the patient's condition warrants it, radical operation for the hernia should be done at once, following one of the many modifications of Bassini's method. If, owing to delay, the patient is greatly prostrated, simple suture may be done, or the wound gently packed, If the intestine is frankly gangrenous extirpation of the dead portion and an end-to-end anastomosis should be done at once, if the patient's condition will allow it. Should the patient be very weak, an artificial anus may be made and

the intestinal anastomosis deferred until he has regained his strength.

Diagnosis.—In the discussion Dr. Henry Roth said that the most important practical feature of this affection is its early diagnosis. On early diagnosis depended early operative interference and that would serve to reduce the mortality more than anything else. The most prominent symptoms are always the reflex changes produced by the irritation of the abdominal nerve. There is shock, pallor, cold extremities, weak heart-impulse, thin, thready pulse, more rapid than normal, and lowered temperature. The cardinal symptoms are those of shock and collapse. The pain is first around the umbilicus, as in colic, and then is localized at the seat of constriction. The tenderness is always local. The pathognomonic sign is the complete constipation. This is due not so much to actual stoppage of the flow of fecal matter by occlusion of the intestine as to a reflex paralysis that prevents peristalsis. As the indol in the feces is delayed in its passage through the intestine, it undergoes further change and is absorbed, appearing as indican in the urine. The urine becomes diminished in amount, partly because there is no absorption from the intestine, partly because there is a reflex diminution of excretion of urine, and partly because the lowered blood pressure due to shock prevents kidney function. In incarceration of the intestine the symptoms are not so severe and are more strictly localized. It must be remembered that where symptoms of intestinal obstruction or strangulated hernia occur and no tumor can be found at any of the ordinary locations where hernias occur, the sciatic and obturator regions should be carefully examined for the unusual forms of hernia. If but very few signs of a hernial tumor exist and the symptoms of strangulation are evident the patient should be given the benefit of the doubt and should be treated for strangulated hernia.

Dr. John F. Erdmann said that in these days of aseptic surgery, as soon as the diagnosis is made with assurance, the operation should be done and should be followed by the steps necessary for a radical cure. Taxis should be made only for a few minutes at most and not at all if it has been already practised by others, or, if the constriction proves on close examination to be small and hard. Morphine should be given about half an hour before taxis is attempted in order to relax the tissues. Hot applications are better than cold ones. If the taxis is unsuccessful the morphine will then serve the purpose of preparing the patient for local anesthesia. For this purpose eucaine B. is the best and most free from danger. Pain is not complained of under this agent even when the manipulations are extensive and somewhat prolonged. Sad results so often follow the use of general anesthesia that it is better as a rule not to employ it. If, after incision, the intestines seem to be very low in vitality and gangrene seems to be threatening, hot towels should be employed in order to decide whether vitality will return or not. Gangrenous intestines, when patients are very weak, may be left on the abdominal wall with gauze packed about them. The delay should not, however, be too long as the patient grows constantly weaker and as soon as reasonable reaction has set in an intestinal anastomosis should be done.

Radical Cure After Operation.—Dr. Irving S. Haynes said that if during the manipulations a tear should occur in the hernial sac, even up into the abdomen, this need not cause much anxiety. It can be sewed up or tied off. The sac should be obliterated as high up as possible after exerting traction upon it, so as to prevent the puckering and depression in the peritoneum which would predispose to the recurrence of the hernia. A portion of the sac should not be left with the idea of making a cushion of it in order to prevent the extrusion of intestine later on. It will never serve this purpose. It gradually becomes absorbed under pressure and a dimple in the peritoneum takes the place of the supposed cushion and gives occasion for another hernia. The peritoneum itself cannot be strengthened. The recurrence of the hernia must be prevented by making the abdominal wall stronger than it was before. In children the internal ring in inguinal hernia is almost directly behind the external ring. This is also the case in adults where the hernia has been large or has existed for a long time. Under these circumstances a new canal should be made, so as to restore the previous condition as far as possible and leave no opening directly from the peritoneal cavity to the abdominal wall. Where there are distinct varicosities in the cord these should be reduced in size by excision and ligature. The Bassini method seems to be the best and an absorbable suture should always be used. Silkworm-gut and wire simply act as foreign bodies and do not strengthen the tissues. In order to secure primary union there should be little handling of the tissues and where there is a good deal of fat some of it should be removed to relieve tension on the sutures. Tension nearly always gives rise, in fatty subjects particularly, to delayed union.

Prophylactic and Postoperative Treatment.—Dr. DeGarmo said that the best prophylactic treatment for strangulated hernia is the performance of a radical cure. Where the rupture is small, however, and does not come down when a light truss is employed, it may be proper to prescribe a well-fitting truss. Too much in the fitting of trusses is left to the instrument maker. It is not a shoemaker or a blacksmith who knows best how to fit a truss, although he may understand the mechanical principles on which they are made. The profession has neglected this subject entirely too much. As to the immediate prophylactic treatment of the serious consequences of a strangulation, very little can be said. Taxis has been considered of value for a long time, but patients seem to do better without it and it very seldom does any good in cases of real strangulation. Where taxis is attempted the gut should not be pushed back but should be pulled down. If the manipu-

lator can succeed in pulling out a little more intestine from the abdomen he will usually succeed and with comparative ease in reducing the hernia. After a successful operation for radical cure patients may be allowed to get up after about three weeks, wearing a bandage for a month or so, and then may be allowed to go absolutely untrammeled.

Dr. Charles N. Dowd said that it is delay and not the operation itself which causes the high mortality in cases of strangulated hernia. There art no contraindications to operation. Age need not delay the surgeon. He recently operated on a man aged seventy-five who had an enlarged prostate. The patient had been himself passing a catheter for a long time, had infected himself and had a severe cystitis, and was very debilitated. The symptoms were rather mild at first but pointed to some intestinal obstruction. There was a painful and tender lump about the middle of Poupart's ligament. It looked like an inflamed lymph node. At first the patient refused operation, but twelve hours later an incision was made and a small strangulated femoral hernia was found and promptly relieved. Two children of respectively four and six months of age, operated on for strangulated hernia, promptly recovered. They bore the operation very well and there was no necessity for hurry or for the omission of any of the usual steps of the operation. Babies stand such operations muct better than has been thought. The general practitioner is sometimes deterred from operating in cases of strangulated hernia by the memory of the long list of the coverings of hernia which he learned during his course in anatomy. In order to operate successfully there is no need to remember these, but simply to make an incision down to the point of constriction, which is usually in the external ring, in the aponeurosis of the external oblique muscle.

Dr. Hotchkiss said there is small danger if the operation is performed early. Recently on an old woman, eighty-one years of age, he operated with good result. The diagnosis is sometimes not so clear as could be wished. This is often the case in the form known as Littré's hernia, in which only a portion of the circumference of the intestine is contained in the hernial sac. The tumor is very small, almost unnoticeable. Even under these circumstances, however, gangrene with perforation and peritonitis may result. Where the symptoms are very suspicious it is safer to explore than to wait long in the hope that they may disappear.

REVIEWS.

Kirke's Handbook of Physiology. Fifteenth American edition; revised by WARREN COLEMAN, M.D., Professor of Physiology in the Woman's Medical College, New York, etc., and CHARLES L. DANA, A.M., M.D., Professor of Nervous Diseases, Medical Department, Cornell University. New York: William Wood & Co., 1899.

THIS edition of Kirk's famous work contains but few changes. These which find a place are on the cell and in the consideration of the coagulation of the blood, in which the rôle of the nucleoalbumin, combining with the calcium salts according to Hammarsten and Lilienfeld, is thoroughly gone into. This combination, thrombin, splits the fibrogen into fibrin and fibrin-globulin, as is now believed but not entirely proven. The ductless glands are given more space than they have hitherto occupied, in accordance with the many clinical and experimental efforts of recent years. Much of the chapter on muscle nerve physiology is also new. Although this edition does not represent the English revision, it will no doubt be satisfactory to many American teachers.

A Pocket Text-Book of Physiology. By H. D. COLLINS, M.D., Assistant Demonstrator of Anatomy, and W. H. ROCKWELL, JR., A.B., M.D., Assistant Demonstrator of Anatomy, College of Physicians and Surgeons, New York. Illustrated. Philadelphia and New York: Lea Bros. & Co., 1899.

THIS little volume, although designated as a pocket edition of physiology, fulfils the purpose of a complete work on the subject after eliminating unnecessary information for the medical student or the general practitioner. The larger textbooks deal with experimental physiology which certainly cannot be included in a work of this kind. Its chapters on circulation, digestion, and particularly on the nervous system are as complete as is possible in such an edition. It is a valuable addition to the series and is up-to-date in every particular. Embryology is included in an interesting chapter. The typography is excellent.

A Blank Book for Autopsy Protocols. By ALDRED SCOTT WARTHIN, M.D., Ph.D., Assistant Professor of Pathology in the University of Michigan. Ann Arbor: George Wahr, 1899.

THE medical student at the University of Michigan is expected to attend twenty autopsies during the last two years of his studies, and this book is designed to facilitate the keeping of a careful protocol, which he is required to make in every case. The book is of a convenient size and can accommodate the autopsy protocols of ten cases. Each autopsy is allowed ten pages, carefully ruled for the various organs. The difficulty in employing such a book for general postmortem examinations is that it may often happen that the space given to a certain organ will be inadequate in many instances to contain the necessary description of the pathologic condition. However, for the purpose designed the book will be found very satisfactory.

A Text-book of Physiology. For Students and Practitioners. By WINFIELD S. HALL, A.M., M.D., Ph.D., Professor of Physiology in the Northwestern Medical School, Chicago. Il-

lustrated. Philadelphia and New York: Lea Brothers & Co., 1899.

PHYSIOLOGY has sounded a new note in recent years. It no longer deals simply with organ and function, but seizes for its explanation of life processes upon comparative morphology and embryology, upon the refinements of chemistry and physics, upon comparative anatomy and histology. The work under review is a fine example of this newer physiology. In style and manner perfect, it teaches its lessons from the broad standpoint of comparative physiology, it draws its deductions from experimental evidence not only, but from the cognate sciences as well. At important points historical data are added, which throw light to the reader as to the identity of familiar names and trace for him the methods and means of discovery of vital physiologic facts. If the work is a literary success, it is certainly also a scientific success in the broadest conception of the term.

There is scarcely the space at the reviewer's command which so important an issue demands. Some important elements will therefore be pointed out which will illustrate the general high trend of Dr. Hall's book. In the first place, the broad conception of physiology, which the author has, is evident in every page. One needs to read but little of the book to be convinced of this. His chapter on the cell alone is worth the price of the work, not because it is not altogether new, but because it presents the knowledge of cell structure as it is held to-day in a most perfect form. His very condemnation is admirable. Again, in the physiology of the nervous system the neuron theory is elaborately, yet briefly given; but so clearly that it must be very easily comprehensible even to the novice.

The author inclines to Schmidt's and Hammarsten's theory as to the coagulation of the blood, the ultimate sources of thrombin, on the one hand, and fibronogen on the other, being the nucleoplasm and the cytoplasm, respectively, derived from the cell protoplasm. He believes the theory of these investigators "as satisfactory as any." In the treatment of the circulation, the physics of the function is clearly depicted, as, indeed, it is of all the various functions. The chemistry of physiologic processes is emphasized in such a way that while the students will not be puzzled, more advanced investigators will find abundant material. This is well seen, for example, in the discussion of the digestive functions.

The author has seen fit not to consider the physiology of the so-called ductless glands. We think this an omission of importance in view of the great clinical interest attaching to these organs at the present time. The book-making is especially to be commended.

Taken as a whole, it has been a most satisfactory pleasure to read Dr. Hall's book. It is essentially modern, wholly scientific, and is indeed one of the few books of which one can say that every student of medicine and biology will be a gainer for having read it.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

LECTURES ON THE PRINCIPLES OF SURGERY. Delivered at the University of Michigan. By Dr. Chas. B. Nancrede. 8vo., 398 pages. Illustrated. W. B. Saunders, Philadelphia.

TREATISE ON ORTHOPEDIC SURGERY. By Dr. E. H. Bradford and Dr. R. W. Lovett. Second Revised Edition. 8vo., 655 pages. Illustrated. Wm. Wood & Co., New York.

A PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. By Dr. Roberts Bartholow. Tenth Edition, Revised and Enlarged. 8vo., 866 pages. D. Appleton and Company, New York.

HERMANN LUDWIG FERDINAND VON HELMHOLTZ. By Dr. John G. McKendrick, 8vo., 300 pages. Masters of Medicine Series. Longmans, Green & Co., New York.

A MANUAL OF THE DIAGNOSIS AND TREATMENT OF THE DISEASES OF THE EYE. 8vo., 604 pages. Illustrated. By Dr. E. Jackson. W. B. Saunders, Philadelphia.

A TEXT-BOOK OF DISEASES OF WOMEN. By Dr. Charles B. Penrose. 8vo., 851 pages. Illustrated. W. B. Saunders, Philadelphia.

HISTOLOGY AND PATHOLOGY. A Manual for Students and Practitioners. By Dr. J. J. Nichols and Dr. F. P. Vale. 8vo., 458 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

CHRISTIAN SCIENCE. An Exposition of Mrs. Eddy's Wonderful Discovery, Including Its Legal Aspects. By W. A. Purrington. Cap. 8vo., 194 pages. Illustrated. E. B. Treat, New York.

A MANUAL OF SURGICAL TREATMENT. By Dr. W. Watson Cheyne and Dr. F. F. Burghard. In Six Volumes. Volume II. Royal, 8vo., 382 pages. Lea Brothers & Co., Philadelphia and New York.

THE CARE AND TREATMENT OF EPILEPTICS. By William Pryor Letchworth, LL.D. Royal, 8vo., 246 pages. Illustrated. G. P. Putnam's Sons, New York and London.

MENTAL AFFECTIONS, AN INTRODUCTION TO THE STUDY OF INSANITY. By Dr. John MacPherson. 8vo., 380 pages. Macmillan & Co., London and New York.

PRACTICAL TEXT-BOOK OF MIDWIFERY FOR NURSES AND STUDENTS. By Dr. Robert Jardine. Cap. 8vo., 245 pages. Illustrated. Macmillan & Co., New York and London.

THE REFRACTION OF THE EYE, INCLUDING A COMPLETE TREATISE ON OPHTHALMOMETRY. A Clinical Text-Book for Students and Practitioners. By Dr. A. Edward Davis. Demy. 8vo., 431 pages. Illustrated. Macmillan & Co., London and New York.

THE TREATMENT OF DISEASES OF THE NERVOUS SYSTEM. A Manual for Practitioners. By Dr. Joseph Collins. 8vo., 602 pages. Wm. Wood & Co., New York. York.

DISEASES OF WOMEN. A Treatise on the Principles and Practice of Gynecology. By Dr. E. C. Dudley. Second Edition. Revised and Enlarged. 8vo., 717 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

A MANUAL OF MODERN SURGERY. An Exposition of the Accepted Doctrines and Approved Operative Procedures of the Present Time. For the use of Students and Practitioners. By Dr. John B. Roberts. Second Edition. Revised and Enlarged. 8vo., 842 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.